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ABSTRACT

Offering long-range planning as a means of controlling educational problems and opportunities, this guide presents procedures for school district planning as well as relevant information concerning demographics, politics/finance, teaching staff, curriculum, computers/technology, and tomorrow's jobs. Among aspects of planning covered are background, ingredients of good planning, planning models, preparation for effective planning, community and staff involvement, setting goals, needs assessment, application of accurate information and assumptions, generating solutions, setting priorities, issues management, and formal aspects of the finished plan. The implications for planners of demographic trends--including enrollment projections, changes in student types, and increases in single-parent homes--are explored. A section on politics and finance emphasizes the necessity of improving the quality and image of public ecucation in order to maintain public support. Possible solutions to the problem of attracting and retaining capable teachers are offered and staff development policies outlined. A chapter underscoring the need for curriculum reform for higher academic achievement proposes that educational leaders set priorities for core curricula and suggests methods for curriculum review. Technological trends are discussed, and guidelines for integrating computers into educational programs and administration are provided. Educational implications of job projections are drawn. The text is illustrated with case studies throughout. (MJL)

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AASA Critical Issues Report

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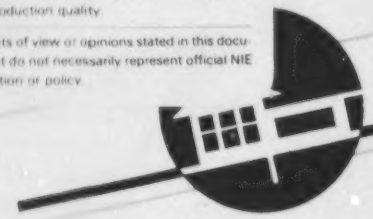
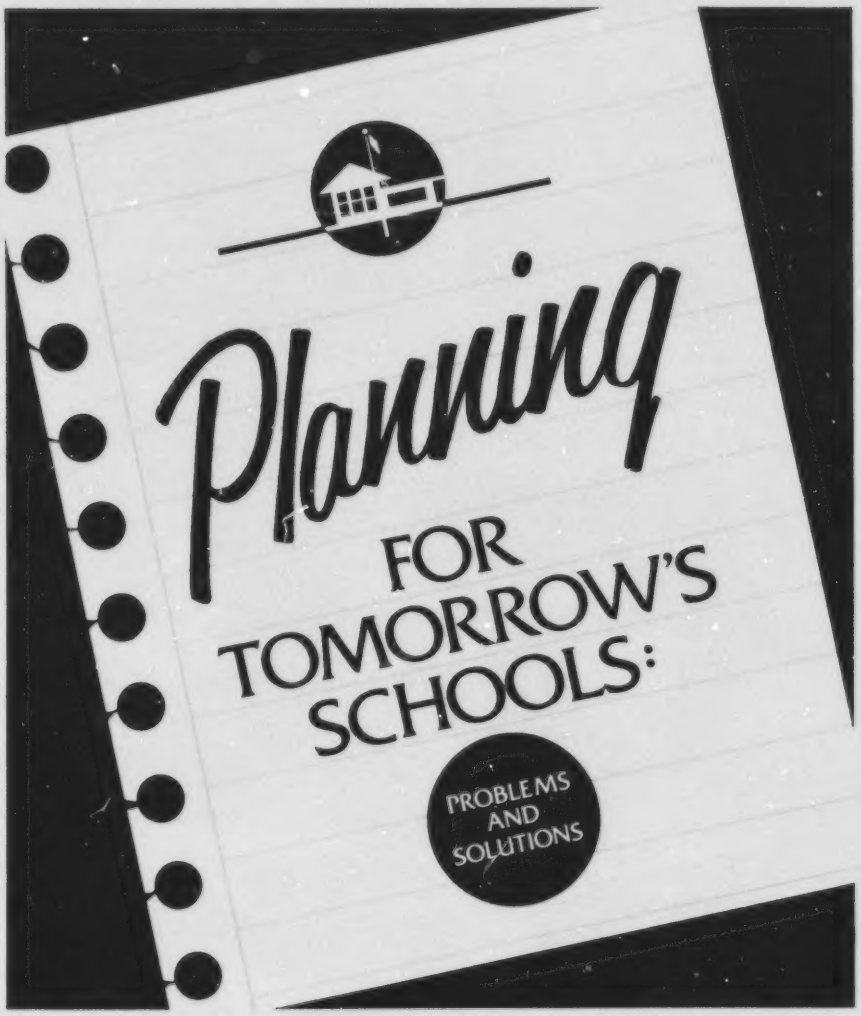


Planning FOR TOMORROW'S SCHOOLS:

PROBLEMS AND SOLUTIONS

American Association of School Administrators

AASA Critical Issues Report



American Association of School Administrators

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The AASA Critical Issues Series

Many of the critical issues facing schools today are controversial. Seldom is there one best answer in dealing with these issues. What is best in one community may not be the best in another. That is why the American Association of School Administrators (AASA) decided to produce a series of Critical Issues Reports. These in-depth reports provide a wealth of information and ideas to help school administrators and school boards deal effectively with the challenge of assuring high quality education for students.

Planning for Tomorrow's Schools: Problems and Solutions is the 13th in the AASA Critical Issues Series. Like the others, it provides an analysis of this puzzling problem. Many of the concerns and ideas included in this book were shared with AASA through a nationwide survey of educational leaders. It is our hope that the information included in this publication will help schools plan and prepare for what they face in the years ahead. We have purposely prepared this publication in non-jargon English.

Our thanks to those who helped make this publication a reality — David Savage, an education writer based in Los Angeles, and school administrators who participated in the Critical Issues Survey for this report.

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Contents

Introduction 4

I. **Planning for the Future** 7
Planning is not a new art form, but today it is more important than ever. This chapter examines the essential ingredients of effective planning.

II. **Demographics** 31
Demographic shifts for the next decade will test the ability of school planners.

III. **Politics/Finance** 40
Varying levels of political interest in education and concern for prospects for additional federal aid lead to a variety of predictions about the future of education. School administrators are attempting to build public confidence. They're also getting some help from business, industry, and foundations.

IV. **Teachers** 45
How will school districts be able to attract and hold top-notch teachers in the years ahead? Some districts have answers; so do some researchers.

V. **Curriculum** 54
To prepare students for tomorrow's world, schools must critically examine current curriculum offerings. Some districts are adopting a core curriculum; others are upgrading science and math programs.

VI. **Computers/Technology** 67
Are computers and other new technology the wave of the future for schools? If so, how should a district plan to join the movement?

VII. **Tomorrow's Jobs** 76
"Americans must learn the knowledge and skills for new jobs now and for future jobs." That view comes from the head of a forecasting organization. He cites three specific changes that education should make.

Introduction

Just two years after the Bolshevik revolution, in 1919, the journalist and muckraker Lincoln Steffens visited the Soviet Union and returned to New York to announce, "I have seen the future and it works," thereby joining the long list of visionaries whose forecasts for the future were clear, confident — and wrong. Steffens managed to include two blunders in one short statement: communism has not been our future, and it doesn't work.

History has been dotted with social utopias and visions of the perfectability of human character, most of which have become forgotten embarrassments. Conservatives like syndicated columnist George F. Will probably overstate the case. "The last new idea in education came from Socrates," Will once observed.

Even in the area of science and technology, where progress by any measure has been startling, extrapolating forward 20 or 50 years usually results in an idealistic vision which, with the benefit of handsight, appears childish in its simplicity. The visionary himself usually has the benefit of being long dead.

The New York World's Fair in 1939 inspired many such visions of a technological utopia of the future — perhaps by 1960 or so.

"Futurists writing 40 years ago," wrote former *New York Times* education editor Fred Hechinger, "predicted that by now, the power to light and heat our homes would be plentiful and cheap — less than one-tenth of a cent per kilowatt hour. Engineers foresaw tiny automobile engines the size of a man's fist, driven by atomic power." The World's Fair also gave "visitors a glimpse of tomorrow's cities — traffic hidden from view, parks enveloping beautiful and functional housing, the air unsullied, poverty banished." As Hechinger, a devoted but resigned New Yorker, dryly observed, "we now live in those cities of tomorrow."

Anyone who has spent time working in the field of education has witnessed futuristic predictions proven wrong — television and filmstrips as a profound new way of learning and as a potential replacement for teachers, open classrooms, the new math. All of these innovations, in the view of their proponents, were the dawn of a new era of better learning. But, as Stanley Elam, the long-time editor of the *Phi Delta Kappan*, observed, it helps when you are talking about the future of education to be able "to grin with egg on your face."

There are two ways to play it safe: avoid the dramatic conclusion in favor of cautious and questioning speculation and keep the focus on the next 10 to 20 years, not the distant future. This report observes both safeguards.

There is cause to look with some optimism at the next 10 to 20 years in education. Since 1969, school enrollments nationwide have been declining. So have Scholastic Aptitude Test (SAT) scores. These two measures are somewhat the equivalent of the Dow Jones stock average and the unemployment rate in the world of business.

In the 1980s, SAT scores show signs of moving upward again, and the U.S. Census Bureau says the number of students between the ages of 5 and 17 will hit bottom about 1984, and then rise steadily throughout the rest of the 1980s and 1990s. By the late 1990s, school enrollments nationwide should make up for all the decline of the 1970s and be just about where they were in the peak years of the late 1960s.

Why? Because of what demographers call the "baby boom echo." Women are not having more children now. There are simply more women having children. The big baby boom generation

born from 1946 to 1963 is now in its prime years of having children — from 20 to 37. Demographers were fooled a bit because the baby boomers have been late bloomers. Women are having children later, so the enrollment turnaround has been pushed back a few years. But it is coming, and it will swell the numbers in the nation's elementary schools for the rest of this decade. School administrators who have become skilled at cutting back and closing down may have to relearn how to plan for growth and expansion.

Unfortunately, the toddlers of the 1980s are often doing their toddling in quite a different location — to generalize, farther south and west — than the toddlers of the 1950s. As a result, the Sunbelt, which has seen most of the nation's growth since 1970, will see even more in its schools in the late 1980s and 1990s. The industrial states of the Northeast and upper Midwest, along with the Farm Belt, which have suffered the biggest declines, may experience a further drop-off, although it will not be nearly as severe as in the decade before. Schools in New Jersey and Ohio may still be closing. But, Texas, California, and the Rocky Mountain states may have to undertake a school construction program. In the 1982 general election, California voters approved a $500 million school building program because some rural areas and distant suburbs expect a doubling of elementary enrollments and because the city of Los Angeles is getting about 10,000 new students a year and already has more than 200 overcrowded schools.

Besides the prospect of new and, in some cases, dramatic growth, school planners in many communities will have another dilemma in the next decade. In a typical school district, elementary enrollments will rise throughout the 1980s while high school enrollments sink — reversing the pattern of the 1970s. Secondary schools will have empty classrooms and furloughed teachers by the end of the decade.

One possible solution, which many districts are considering, is to switch from a junior high with grades 7 to 9 to a middle school of grades 6 to 8. In some big cities, school officials may be faced with the task of closing a high school while constructing new elementary schools.

Test scores and school achievement are even less predictable than the birth rate, but there is plenty of evidence that the long SAT score decline may be over. One indication: The average score actually rose in 1982. One year doesn't make a trend, but the cause of the decline and how to reverse it have now been thoroughly explored.

In 1976, David Wiley of the University of Chicago published a report entitled, "The SAT Decline: Do We Need To Worry?" His answer, in short, was "Yes." What Wiley discovered was that high school students in the early and mid-1970s were taking far fewer of the presumed basic courses — English, math, history, science, and foreign language. Instead, they were taking more social electives — "Marriage and the Family," "Bachelor's Survival," and "Student Leadership," for example. Even the traditional courses were being altered by "mini-courses" and substitutes. English literature was being replaced by "detective fiction" or "radio/television/film." Whatever the merits of these electives, they did not in general give students the same sort of academic preparation as the solid, core courses of earlier decades.

In 1977, a College Board panel headed by former U.S. Labor Secretary Willard Wirtz said much the same thing in a well publicized report on the SAT decline. The panel picked up much of Wiley's research and included evidence that the average amount of homework had declined among secondary students, that textbooks had been systematically watered down, and that student grades had been inflated. Unfortunately, the panel also placed part of the blame on television, single-parent families, and the "era" of Vietnam and Watergate — causes that got more publicity and tended to stifle the evident academic problems.

Blaming Vietnam or Watergate for poor academic performance by high school students in the 1980s is not a particularly useful explanation. Nor is a minimal competency test for 12th graders a particularly useful solution if students have not read much English literature or studied much history, mathematics, or science. Of necessity, the minimal competency exams usually test what is simple and measurable, like vocabulary or computation, but no one can take great comfort from the 99 percent passing rates.

Focus on Academics

What is more hopeful is that many educators are now focusing their attention on the real problem facing schools — the amount and quality of academic learning among secondary students — and doing something about it. State university systems across the country are raising

or reinstating admissions standards that require students to have a solid academic education before applying for college. The impact on high schools is immediate, and in most cases, welcome.

Many school districts and state departments of education, with far less publicity, are moving in the same direction. The less demanding elective courses are being weeded out, and the academic courses are being bolstered. The same data Wiley cited in 1976 to show that students were enrolling in fewer academic courses now give evidence of the opposite trend. If the trend continues, SAT scores and other measures of academic achievement should follow suit and head upward.

Why academic learning? Because, to echo bank robber Willie Sutton, "That's where the money is." The question itself may sound silly to anyone not familiar with what's happened in the education business over the past 20 years. In that time, schools have been asked to bring about true equality, to eliminate alcohol and drug abuse, even to change poor eating habits.

But the best reason for the schools to keep the focus on academic learning is the future.

More than half the new jobs in the next 20 years are expected to come from the high technology industries, and even the old technology industries are being forced to change or die. Those new jobs, and in some sense, all jobs, will demand persons who are better educated.

The "information revolution" will change how both workers and executives do their jobs. Workers, to keep working, will have to learn to adjust to rapid changes in technology. Learning a simple trade once will not suffice, and it is through a good education that a worker learns how to learn. Office employees will be less involved in the mechanics of information — filing reports and checking accounts — and more involved in seeing to it that the system itself is working without error. And executives, faced with far more information at their (and their competitors') fingertips, will have to be better schooled in the art of analysis and interpretation of what it all means. In all three cases, the person will need a more in-depth, high-quality education to succeed.

That vital link between education and economics is being increasingly recognized. In 1980, Ronald Reagan ran and won while talking about the notion of "supply side economics" — that the government could help revitalize the economy by encouraging investment in new plants and equipment — the so-called supply side of the supply-and-demand equation. But, the critics pointed out, "human capital" — the skills and talent of the work force — have as much to do with economic revitalization as physical capital like plants and equipment. Japan, which seems of late to be the model for everything, is often cited for its policies of encouraging long-term capital investment in plants and equipment. But Japan is also notably lacking in the resources needed for an industrial economy — land, coal, and minerals, for example. Its economic power is more a product of the education and energy of its people, according to the critics.

Even though schools have been faced with tight dollars, declining enrollments, and growing expectations, school administrators have shown a growing desire to deal with those problems and be on with the task of assuring high quality education for students.

"We cannot afford to become victims," said AASA Executive Director Paul Salmon.

How can districts avoid becoming victims and get a handle on the problems and the opportunities? Through planning, Salmon said.

"The people of our nation must understand," he added, "that education is an investment, not an expense. They must understand that an investment in education pays off for their communities and for their state and nation.

"If we don't invest in our human capital," Salmon said, "then we are destined to suffer from the cost of neglect. If our human resources are developed through education, if we make that investment up front, people become productive members of our society. If we don't make that investment up front, then we will pay later . . . in lost productivity, welfare, and jails. If undeveloped, people cost you and cost you and cost you until they die."

Chapter 1

Planning for the Future

In the fall of 1979, the St. Louis Park (Minn.) School District found itself in the same position as many other districts — declining in enrollment, relatively affluent although forced to cut back, and with a history of solid and extensive educational programs and a community that had high expectations for its schools.

Supt. Michael E. Hickey and the district staff and community were not ready to accept a future of decline.

"Although it may seem like a pretentious claim," Hickey said, "St. Louis Park is well on its way to becoming a school system of the future, with an educational program for the 21st century."

The district undertook a planning program called "Project 85," an effort that was anything but small. Hickey saw the project as a way to totally remake the school system.

"Until the last 10 or 15 years, the commonly held view of the future was a linear projection, firmly rooted in the past and the present," he said in an introduction to the project. "The future — and there was only one — was determined by where you had been and where you were," a rather fatalistic and passive view. "Recently, however, futurists have come to recognize that there is not a future, but there are futures, a widely varying range of possible outcomes. We choose among these possibilities and to a large extent, influence their realization by taking — or failing to take — certain actions. Success or failure in the future depends on choices that are made or not made now." Hickey added that the project "is a unique effort on the part of a school system and community to make these changes now and thus shape their transition into a new century."

Hickey's approach to planning is, in his own words, "entrepreneurial." That is, the district consciously thought of the constituency it was serving, how this group could be served better, how the system should respond to the shrinking of its traditional constituency, and how it could find new groups to serve.

Stevan Holmberg, an associate professor of business at American University, Washington, D.C., recommends a businesslike approach to planning for schools. Planning, he said, should not be a one-time or narrowly focused effort — for example, to plan the introduction of a new course in the curriculum.

Rather it should be a continuing effort that encompasses everything the school district does. A corporation must constantly look hard at itself, asking questions such as where it is performing well, where poorly; where it can move in the future to capitalize on its strengths, and how it can eliminate or compensate for its weaknesses. Planning that looks only at the balance sheet for this year and next will leave a corporation vulnerable to the inevitable changes in the market. Many American executives are now learning this lesson from Japanese counterparts whose planning cycle is more future-oriented.

Holmberg contends the same basic notion applies just as well for education executives. A district that plans only over the short term and with a narrow focus on a problem or program risks being overtaken by change.

The St. Louis Park district had gotten the feel of being overtaken by change, and didn't like it. "Having come through years of enrollment decline, budget reductions, and school closures," Hickey said, the need to reshape the district's future was readily apparent to all participants. "Without this, the probable future of the district

was one of continuing decline and the pervading negative mentality which accompanies it. Given a proactive response, change became a challenge which opened new views of the future and from which consensus could be sought on those views which were preferable for the school system and the community."

"We were a declining district. We had gone from 11,000 students, K-12, to 5,000," Hickey said in an interview for this report. "We were forced to redefine our mission. We've become a cradle-to-grave school system."

The numbers bear him out. At the start of the 1982-83 school year, St. Louis Park had 33,000 students in its continuing education program — pre-schoolers to senior citizens. "Our vision of our school system has changed. We offer classes for leisure-time activities and for retraining of private sector employees. We took an entrepreneurial approach — looking for opportunities to expand," Hickey explained.

Some classes are paid for through user fees. The city government has contributed $130,000 to fund others.

About 82 percent of the families within the school district did not have children in school. "In the traditional sense, they were not part of our market," Hickey said. Yet, the school system won approval for two special levies to help pay for extra school programs. In June 1982, more than 60 percent of the voters approved an extra 5.75 mills, despite the severe economic crunch in Minnesota. "We've made people feel it is still their school system," the superintendent said.

Roots of Planning

Educational planning is not a new art form; it has deep roots. In *The Republic*, Plato showed his awareness of the need for systematic evaluation and planning in education, according to C. Dennis Ignasias of the University of Maryland, College Park, and Alan B. Henkin and Lelia B. Helms of the University of Iowa, Iowa City.

In tracing the history of planning in the United States, the trio found that the first systematic community survey, which included information on the public schools, was conducted by the city of Pittsburgh in 1907. By 1910, the three professors say in an article in the *Peabody Journal of Education*, studies of school systems were being conducted by internal staff, state departments of education, and citizens.

By 1932, a somewhat standard format for school surveys evolved. It included four basic segments: questioning present or proposed practices or programs; studying and evaluating the status of all factors relating to practices or programs; defining immediate and future needs; and outlining practices and programs to meet these needs. Most surveys contained sections devoted to problem definition, supportive data and findings, and recommendations.

Educational planning became a specialized competence and surveys became integral parts of educational policy development processes. "Goals" and "needs assessment" became part of the vernacular of school officials. Then as now, districts looked to planning as a way to make instruction more effective and administration more efficient.

Today's Planning

Today's educational plans, like their survey predecessors, range in scope from *comprehensive* to *single purpose* to *independent self-study*. As to the adequateness of today's planning methods, the three professors report: "No comprehensive planning format has proven acceptable or adequate for the enormous variety of activity accommodated within our system of American education." Then, they quickly add: "Such variations would appear to preclude standardization."

As a general model for educational planning, the trio offer modern municipal surveys. When adapted for education, such surveys usually examine most of these subjects:

- Community background, development, resources, and school-community relations.
- Curricula, school organization, instructional methods, and their relationship to district educational goals, objectives, policies, and staff.
- Existing facilities and space adequacy/utilization with projected sites and building capital outlay needs.
- School enrollment and population data and trends.
- Budget status with future operating cost estimates considered in the context of the community's fiscal capability.

The three professors emphasize the importance of developing data bases in order to make intelligent decisions about future educational directions. They pinpoint these patterns in today's educational planning that indicate school districts are doing something about this need:

- **Looking ahead.** School plans and forecasts often are projected from 5 to 20 years into the

future, and they sometimes include alternative approaches to current and future problems.

- **Testing attitudes.** Schools are surveying teachers, administrators, parents, students, and community members to reconcile the needs of the school system with the expectations of its constituencies. These efforts recognize the necessity of making compromises in education planning.
- **Using data.** School districts are using computers in data analyses, enrollment projections, data storage, and retrieval.
- **Working together.** As an incentive to district planning, federal and state governments are requiring or recommending that school districts involve staff and school board members, parents, and other community members in drawing plans for the future.

Why is planning important in education? In the view of the three professors, its importance "may reside less in its technical adequacy or vision than in the processes it conditions and the political environment within which it functions. By bringing together all of the groups who have an interest in a district's educational plan (and by letting them shape the plan through their discussion and debate), the district gains support for the resulting plan."

A Definition

The planning process, says Supt. Jerry L. Nichols of the West Marshall Community School District, State Center, Iowa, is one by which districts ask and attempt to answer the questions: "Where are we? Where do we want to go? What are some realistic ways of getting there? Which is the best route? What are the risks and likely side effects?" When the plan is under way, Nichols adds, "we still must ask: How far have we come? Are we still on course? Do we still want to go to the same place? What changes are required?"

Why Do It?

"The principal responsibility of the board of education is to formulate a philosophy, to establish policy, and to give overall direction to the school staff. The district's long-range plan helps in this effort," says Supt. Robert C. Stevens of the North Scott Community School District, Eldridge, Iowa.

Stevens' district uses a five-year plan as its basic planning document. All aspects of the district's operations are brought together in the plan, he says, and needs are projected in each area over the five-year period. Citizens identify the district's priority needs through a needs assessment conducted every three years.

"The five-year plan," Stevens explains, "is the administration's effort to gather facts that interpret the needs, and to recommend to the board what future action should be taken. Further," he adds, "the five-year plan provides a basis for the board's evaluation of the school system's progress, as well as for the selection of annual goals for the system and for individual staff members."

State legislation and state-initiated "school improvement programs" in the late 1970s and early 1980s have also given a real boost to educational planning.

A 50-state survey by the Education Commission of the States in June 1982 found that 23 states were engaged in an official school improvement program, 22 states had a school planning requirement, and 14 states required or recommended the involvement of parents in school improvement efforts.

A 'Futures' Planning Model

Supt. Michael E. Hickey of the St. Louis Park (Minn.) School District is a great believer in the need to develop a "futures perspective." He contends that this sort of viewpoint is more vital than any particular process or model for planning.

"Our minds, and the stereotypical views we have, are the biggest limitations" in planning, Hickey said. "We too often think only of what is, rather than of what can be.

"When I talk to other superintendents, my main message is that you first need a perspective on the change that is bombarding us now. Then, you need a vision of the future. There is, of course, no single future, but a lot of possibilities. You need to think of what you would like the future to be."

Hickey's other recommendation is echoed by most school planners: Involve the community and staff. "The old model of an administrator dictating to the staff won't work. They are the ones who need to determine what future we want, and they are the ones who will make it happen," he said.

Ingredients of Good Planning

School administrators use many different planning processes to improve their educational program and/or district management. Some make a straight-line projection from year to year. Others use a more forward-looking method of determining what their district would like to become — "dreaming a little" — and then planning how to make that dream come true.

Some elements are considered essential, no matter what planning process is used. They include:

- **Planning ahead a minimum of five years, with a comprehensive update of the plan yearly.** Note, however, that the demographic and economic forecasts which help form the basis for the plan should include projections for 10 to 15 years.
- **Flexibility.** Things change; so, too, must the district plan. In the words of one educator, it must be a "living document."
- **Consideration of both internal and external factors that impact on planning.** The internal factors would include consideration of, say, the district's policy on pupil/teacher ratio or student/adult ratio, or any plans to hire or retrain staff for anticipated curriculum changes (e.g., new courses on technology). The external factors might include: the labor market and economic conditions, the social and demographic context into which schools fit, parent and community expectations of the school system, human and technical resources that are available, organizational and legal constraints, and financial resources and costs.
- **Willingness to work with parents, legislators, and other groups and organizations in the community.** Regional planning agencies meet often, for example, to share information of vital interest to school planners. Therefore, school planners must check with these agencies to assure that the district is using the same statistics and information on changes in the community, living patterns, projections on school enrollment. By involving various constituents, experts say, school planners gain their input and their support.
- **Connecting planning to the budgeting process.** A plan should consider what resources would be needed to provide the best possible education for all students and how the district can pull together those resources. Another strategy to consider is to identify during the planning process the areas that should receive top priority in budgeting if the total resources available will not fund the "ideal" plan. The planning document can then be used to show parents and other groups what the district may have to cut or postpone unless sufficient funding is found.
- **Communicating the plan not only to parents and outside groups but to all staff members.** Their understanding and support will help guarantee implementation of the plan.

A Model for Planning

One model for planning, which breaks the process into discrete, easy-to-understand steps, was developed by the Council of Educational Facility Planners (CEFP) with support from the Charles Stewart Mott Foundation.

The model, called "cooperative planning," can be readily applied, CEFP says, to a variety of situations, ranging from broad community concerns to efforts concentrating on institutional reorganization. Its uniqueness, CEFP adds, lies in the variety and diversity of individuals who are given access to planning.

The model breaks planning into seven stages:

Stage 1 — Getting started. At this stage, primary attention is paid to getting a group together and clarifying its responsibilities, recruiting a planning team, and warming up to the task.

Stage 2 — Gathering information. This stage requires the collection of two types of data: hard data (facts and figures about the setting, population, and resources) and soft data (feelings and perceptions about the setting, its needs, and its future).

Stage 3 — Identifying priority needs. The goal here is to set priorities among the needs uncovered in stage 2. To do this, needs are sorted into major categories, criteria are selected for ranking the needs, a procedure for polling the planning group (e.g., survey or interviews) is selected.

Stage 4 — Defining program requirements. The planning group explores in depth the high priority needs that have been identified and what each need requires in terms of staff time, financial commitment, equipment, and other considerations.

Stage 5 — Exploring options; developing a plan. How can the needs or programs defined in stage 4 be combined into a single plan? This is the task confronting planners in stage 5. Choosing among the options available to meet each need and gaining consensus on their adoption are

AASA Respondents Consider Planning an Important Priority

Four out of five school administrators say their district considers planning important and devotes "considerable time" or "some time" to it. But in almost all cases, the horizon for such school planning efforts is five years or less.

In the AASA survey for this report, administrators were asked whether planning in their district was "(1) a top priority, something we devote considerable time and attention to; (2) important, an area we devote some time and attention to; (3) important, but we find we don't have enough time to pay much attention to it; or (4) not very important, considering the day-to-day problems we have to deal with."

The 400 responses should not be considered a representative nationwide sample since, presumably, those most interested in planning would be more likely to read and respond to the survey. But of those who did respond, 29 percent said planning was a top priority in their district, and 51 percent called it an important area worthy of time and attention. Another 16 percent admitted they didn't spend much time on planning, even though they considered it an important concern. Only 2 percent said planning was not very important in their district.

How far ahead does your district plan? In response to that question, 45 percent of the respondents said two to three years, and 42 percent said five years. Another 8 percent admitted to a one-year planning cycle, but only 5 percent said their district planned 10 years or more than 10 years ahead.

prime concerns.

Stage 6 — Refining the plan. This stage requires expert input in all or some of these areas: budget, legal, governance, and administrative issues. At the same time, however, the broad-based group of individuals who have been involved in planning must be kept informed and involved so that the plan is still "theirs."

Stage 7 — Follow through. Here, the plan is carried out. This includes communicating, evaluating, reviewing, and perhaps revising the plan to meet changing needs. "From this stage," CEFP summarizes, "emerge the results of the planning effort: the changes that respond to the issues identified when the planning effort first got started. The changes may or may not be highly visible. Perhaps the results will be better communication and coordination among departments or service agencies. Perhaps the change will be highly visible such as construction or renovation of a building. The main thing is that 'something' happens that improves the setting . . . and that 'something' is a result of people planning cooperatively."

See the illustration of the CEFP model contained in this chapter. A more complete description of it, including a checklist for each stage, is contained in the *Cooperative Planning Primer*, available for $1.25 from CEFP Journal, 29 W. Woodruff Ave., Columbus, Ohio 43210.

Note: Two other models for planning are also shown on pages 15 and 17. You may use them as is, modify them to fit your needs, or simply compare them to the planning model you are now using in your district.

Planning for Planning: An Administrative Task

Effective planning doesn't just happen. You have to plan for it. The Pennsylvania Department of Education developed this checklist of questions to consider before starting a long-range planning effort.

- ☐ What are the principal tasks to be completed?
- ☐ What outcomes or products are expected for each task?
- ☐ When will specific tasks be initiated? Be completed?
- ☐ Who is responsible for each task?
- ☐ How will school staff and community be involved?
- ☐ What communication procedures will be needed?
- ☐ What staff time and district resources are required?
- ☐ What outside assistance will be needed?

Who's Involved

Respondents to the survey for this Critical Issues Report indicated they draw on many resources (persons, publications and other written materials, and organizations) to plan for the future.

Generally included are: the superintendent, central office staff, principals, teachers, school board members, parents, and individuals from the community other than parents.

Frequently, districts also receive help from outside consultants, colleges and universities, professional organizations, and local business and industry. As noted by one respondent, however, "primary responsibility rests with the central office — the buck stops here."

Community/Staff Involvement

Community/staff involvement in planning offers a district many advantages. It can improve overall school-community communication, increase public understanding and satisfaction regarding school operations, increase participation in the total school program, clarify community and staff roles in the educational process, and increase respect between school and community.

For these and other reasons, community/staff involvement is usually described as a necessary element in any planning method. But it should be more than that, according to most authorities on planning.

Community/staff involvement, the Pennsylvania Department of Education advises in a primer on the subject, should be viewed as "an integral part of a district's ongoing community involvement program and not as a unique feature for purposes of meeting state requirements for long-range planning."

Long-range planning, the department explains, "is a continuous, ongoing, cyclic process. Districts regularly will be appraising needs and priorities, and implementing and evaluating specific action plans for improvement. Continuous interactions should be the norm, given the relatives of time, money, and other resources."

How?

Four broad approaches are suggested for involving community and staff in district planning:

- Councils or committees.
- Community and staff surveys.
- Public meetings or presentations.
- Ongoing contact through various other communication channels.

The method most frequently mentioned by the respondents to the survey for this report was committees.

These include *"working committees"* or *"advisory committees."* If a district elects to use working committees, the community can participate with school staff and share the responsibility of drafting plans, collecting data, and writing reports for all or part of the district plan. Advisory committees, on the other hand, usually review and comment on the collected data and suggested alternatives.

Districts may elect to use one or the other of these alternatives or some combination of the two. Districts with a small central staff, the Pennsylvania education agency recommends, may find a variation of the working committee helpful. Districts with a larger central staff might prefer to have staff members do the required background preparation (with appropriate committee input) to operate productive advisory committee meetings.

Committee Selection

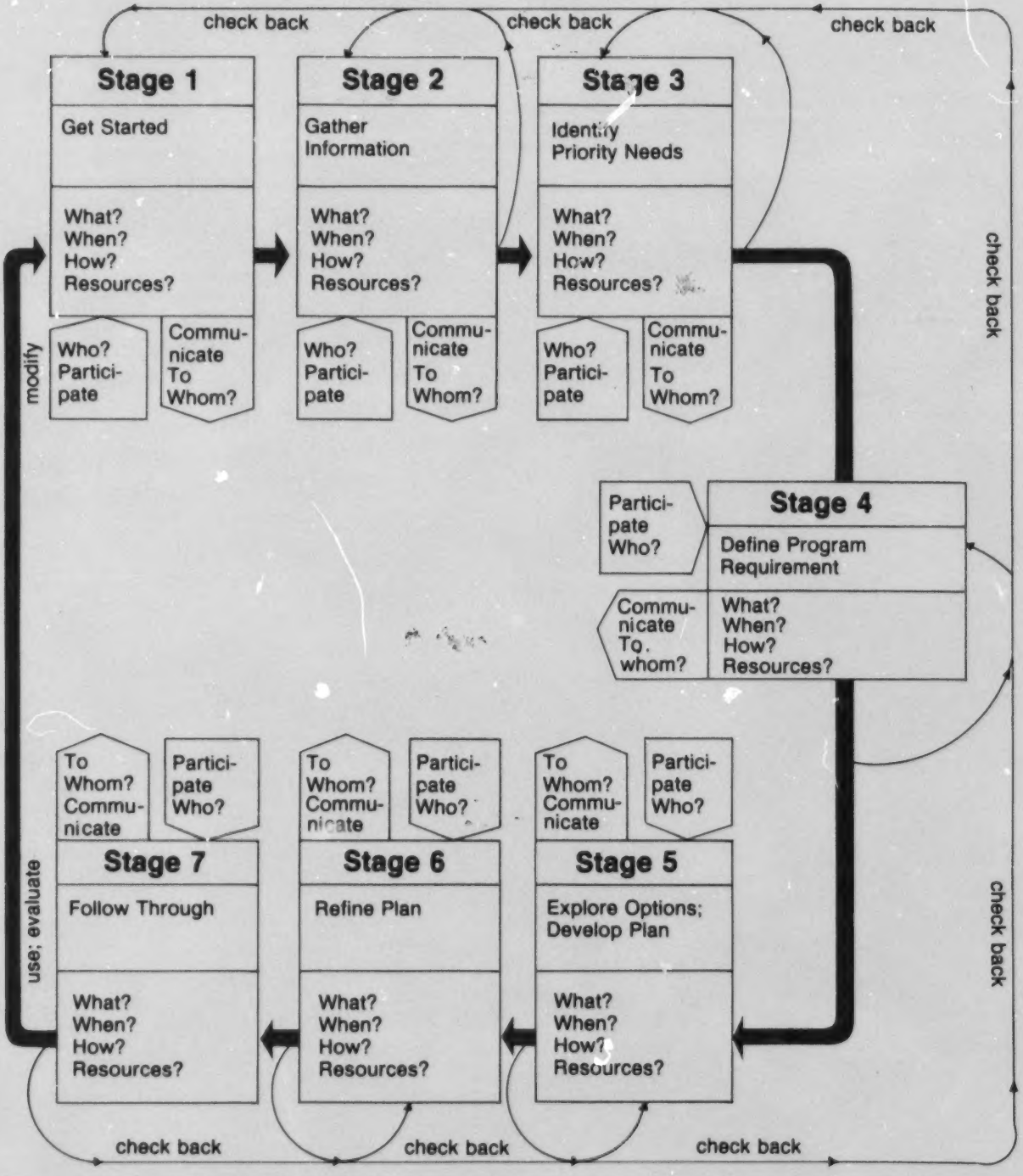
The selection of persons to serve on a committee can be done a number of ways. Whatever method is used, a broad-based group is desirable, with representation from key interest groups. Don't forget single parents or community members who may have no children attending school.

Here are some commonly employed methods:

- Open invitation to community and staff, with placement of all volunteers.
- Open invitations to community and staff, with the board selecting "X" number to serve on a steering committee and "X" number to serve on various study groups, building committees, advisory groups.
- Specific invitations to parent groups, business/civic organizations, local education associations, and student councils, with placement of all volunteers.
- Specification by a core planning committee (e.g., superintendent, board member, long-range planning coordinator) of the interest groups to be represented. The committee invites the groups to select and send "X" number of representatives.
- Naming a committee composed of a representative sample of the community.
- Some combination of the above.

Note: A common practice is to use some form

General Plan for Planning



Source: Council of Educational Facility Planners, Columbus, Ohio. Reproduced with permission.

of central steering or advisory committee composed of a cross section of community members and school staff, and sometimes students, and several subcommittees organized either by building or by some task or study problem. Another option is to assign existing staff committees some aspect of long-range planning.

Success Factors

Many factors influence the success of community/staff committees that are involved in district planning efforts. Included are these activities -- all of which should take place before the committees begin their work:

- Developing a clear statement of district policy regarding community/staff involvement in district planning.
- Preparing a description of the committees and the specific functions of each committee.
- Delineating governance and reporting procedures.
- Specifying how the committee is to communicate with the school administration, other staff members, and the community.
- Preparing a timetable of events or a work schedule to structure input.
- Involving school board members at the outset and continuing to involve them throughout the planning process.

These additional factors will have a positive effect once the work is under way:

- Orienting all participants thoroughly on their respective roles.
- Conducting the process in as open a fashion as possible.
- Involving the community and professional staff jointly in planning and communicating.
- Assigning responsibility for overall monitoring of community/staff involvement to one person in the district. (Some districts assign one central office or other staff person to work with each committee.)
- Periodically reporting to the local press on the planning process.
- Informing the staff and the community of the formation and membership of the committees, their responsibilities, and deadlines.
- Assuring that community and staff have the opportunity and adequate time to review every section of the long-range plan prior to board action.

Example of Involvement

The long-range planning effort in the St. Louis Park (Minn.) School District, Project 85, grew out of a series of workshops in 1979 which included administrators and school board members who were concerned about "how to build a scenario for the school district's future." The workshops preceded Phase I of the project, a series of brainstorming sessions on the future of education. Involved were community groups, building faculties, students, and interested individuals — about 600 in all. Their deliberations were guided by two-person teams consisting of a school board member and a central office administrator.

"The groups and individuals were asked to consider what the district *should* be like by the year 2000," said Supt. Michael E. Hickey.

Responses were sorted into one or more of six areas: educational program, students, community, technology, staff/administration/organization, and facilities.

The responses ranged "from the mundane and naive to the inspired and innovative," Hickey said. Each group was asked to reach a consensus on its views. From the mass of data and opinions, the school administrative staff began "a synthesis and analysis, attempting to combine, cluster, eliminate, and expand the ideas which had poured forth from this important first step."

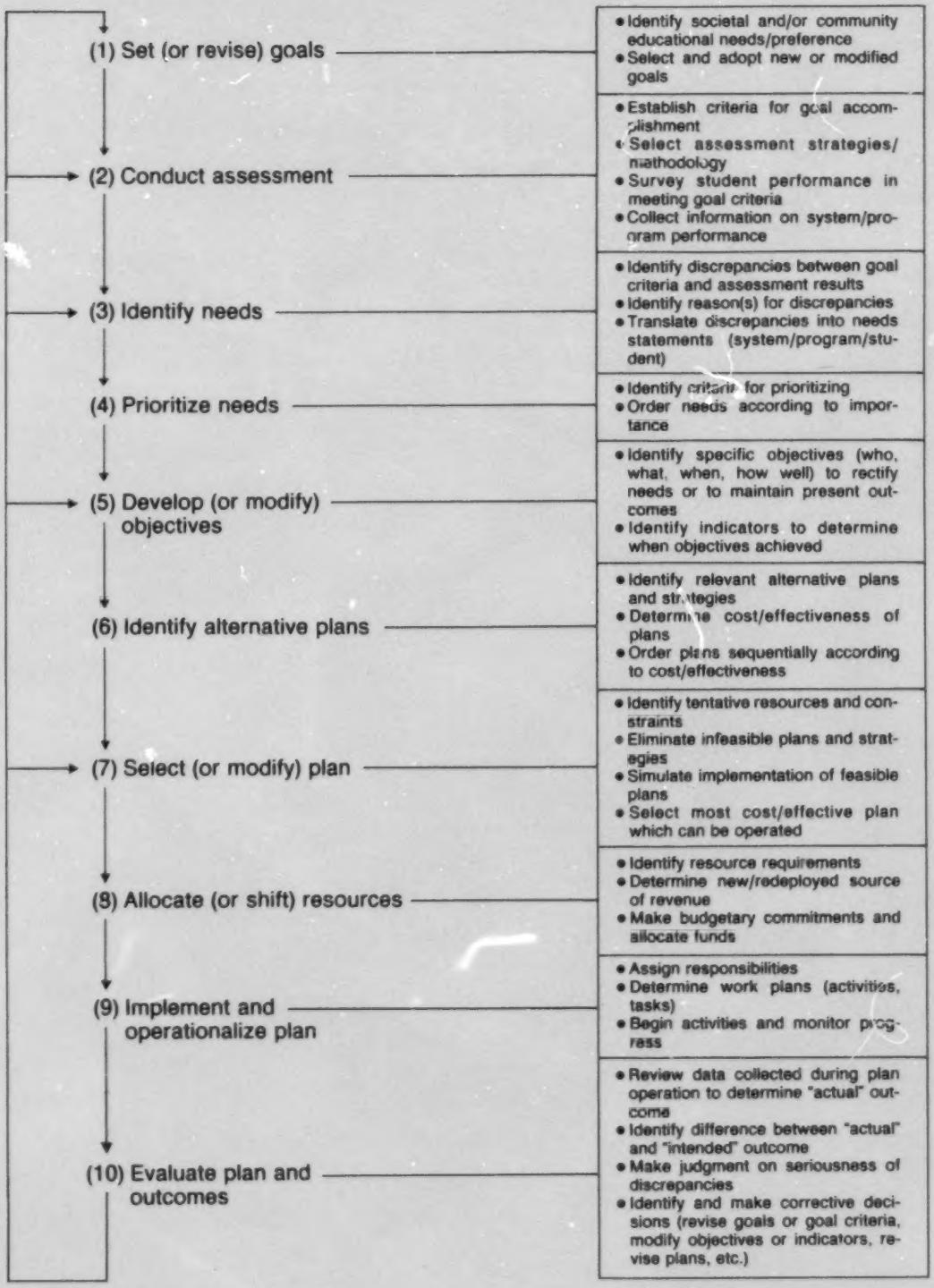
Staff members were able to identify trends and themes which cut across the groups. "Somewhat surprisingly, there was a high degree of commonality in these concepts across large numbers of people with widely varying viewpoints," Hickey said.

In Phase II of the project, six committees were established, one to explore each of the six areas.

"Because these were intended as working committees, membership was generally held in the range of 15 to 30 individuals, although this was not a rigid limit. The composition of each committee was targeted at 60 percent community members, 40 percent staff. This was intended to offset the tendency for educators serving on a given committee to become the 'experts' and preclude or diminish the full consideration of community viewpoints and expertise," Hickey said.

Membership on the committees was open to anyone, but persons with expertise — for example, on the technology committee, business executives who were knowledgeable about computers — were recruited. The district leadership also tried to ensure a wide perspective of viewpoints among the community members on the committees. A community member headed each committee, but "an administrative co-chair was appointed to each committee from the district's

Example: Planning Model


(1) Set (or revise) goals
• Identify societal and/or community educational needs/preference
• Select and adopt new or modified goals
(2) Conduct assessment
• Establish criteria for goal accomplishment
• Select assessment strategies/ methodology
• Survey student performance in meeting goal criteria
• Collect information on system/program performance
(3) Identify needs
• Identify discrepancies between goal criteria and assessment results
• Identify reason(s) for discrepancies
• Translate discrepancies into needs statements (system/program/student)
(4) Prioritize needs
• Identify criteria for prioritizing
• Order needs according to importance
(5) Develop (or modify) objectives
• Identify specific objectives (who, what, when, how well) to rectify needs or to maintain present outcomes
• Identify indicators to determine when objectives achieved
(6) Identify alternative plans
• Identify relevant alternative plans and strategies
• Determine cost/effectiveness of plans
• Order plans sequentially according to cost/effectiveness
(7) Select (or modify) plan
• Identify tentative resources and constraints
• Eliminate infeasible plans and strategies
• Simulate implementation of feasible plans
• Select most cost/effective plan which can be operated
(8) Allocate (or shift) resources
• Identify resource requirements
• Determine new/redeployed source of revenue
• Make budgetary commitments and allocate funds
(9) Implement and operationalize plan
• Assign responsibilities
• Determine work plans (activities, tasks)
• Begin activities and monitor progress
(10) Evaluate plan and outcomes
• Review data collected during plan operation to determine "actual" outcome
• Identify difference between "actual" and "intended" outcome
• Make judgment on seriousness of discrepancies
• Identify and make corrective decisions (revise goals or goal criteria, modify objectives or indicators, revise plans, etc.)

Source: Utah State Office of Education

central administration. This individual's role was to facilitate the operation of the group, provide administrative support, and free up the citizen chair to provide creative leadership." Before getting under way, the district held a five-hour "futures planning workshop" to give members a perspective on planning and some information on fundamental skills for planning.

Each committee was free to set its own style of operation. Each worked for about 14 months, some meeting at times weekly, most convening monthly. A substantial amount of work took place outside the group meetings. The reports of the committees were submitted early in 1982.

The recommendations of all the committees were, of course, presented to the board for review and acceptance or rejection.

Phase III assigned to administrative offices within the district the responsibility for implementing the plans set forth by the committees.

Of the six committees working on Project 85 in the St. Louis Park schools, the educational program committee had the broadest mission and made the most of it. Based on an analysis of future trends in education, the committee set several general principles, a set of priorities for progress, and specific recommendations to put the priorities into effect in the school program.

The committee, for example, set 12 goals for the future:

1. Emphasize a balanced curriculum that systematically teaches students the kind of essential skills necessary to deal with the world in which they will live.
2. Maximize the individualization and personalization of instruction for all students.
3. Emphasize a process approach to curriculum, focusing on hands-on learning experiences, decision making, problem solving, and higher-level thinking skills for students at all levels.
4. Place a renewed emphasis on interdisciplinary/"real world" learning which stresses practical applications and the interrelationship of subject matter and essential skills.
5. Make lifelong learning a desirable and easily accessible reality for all residents of St. Louis Park.
6. Emphasize the development of human skills in a technological age, particularly personal competence and coping.
7. Incorporate emerging technology as a meaningful part of and vehicle for the regular curriculum for all pupils.
8. Provide meaningful involvement of the total community and its resources in the educational program for the school.
9. Introduce a "future focus" into all levels and aspects of the educational program.
10. Emphasize career and vocational education which reflects personal goals as well as changing patterns in employment, working environments, and the workforce itself.
11. Integrate global education and a world view of interdependency into the curriculum at all levels.
12. Provide massive and continuing staff development and inservice training to equip the staff to accomplish all of the above.

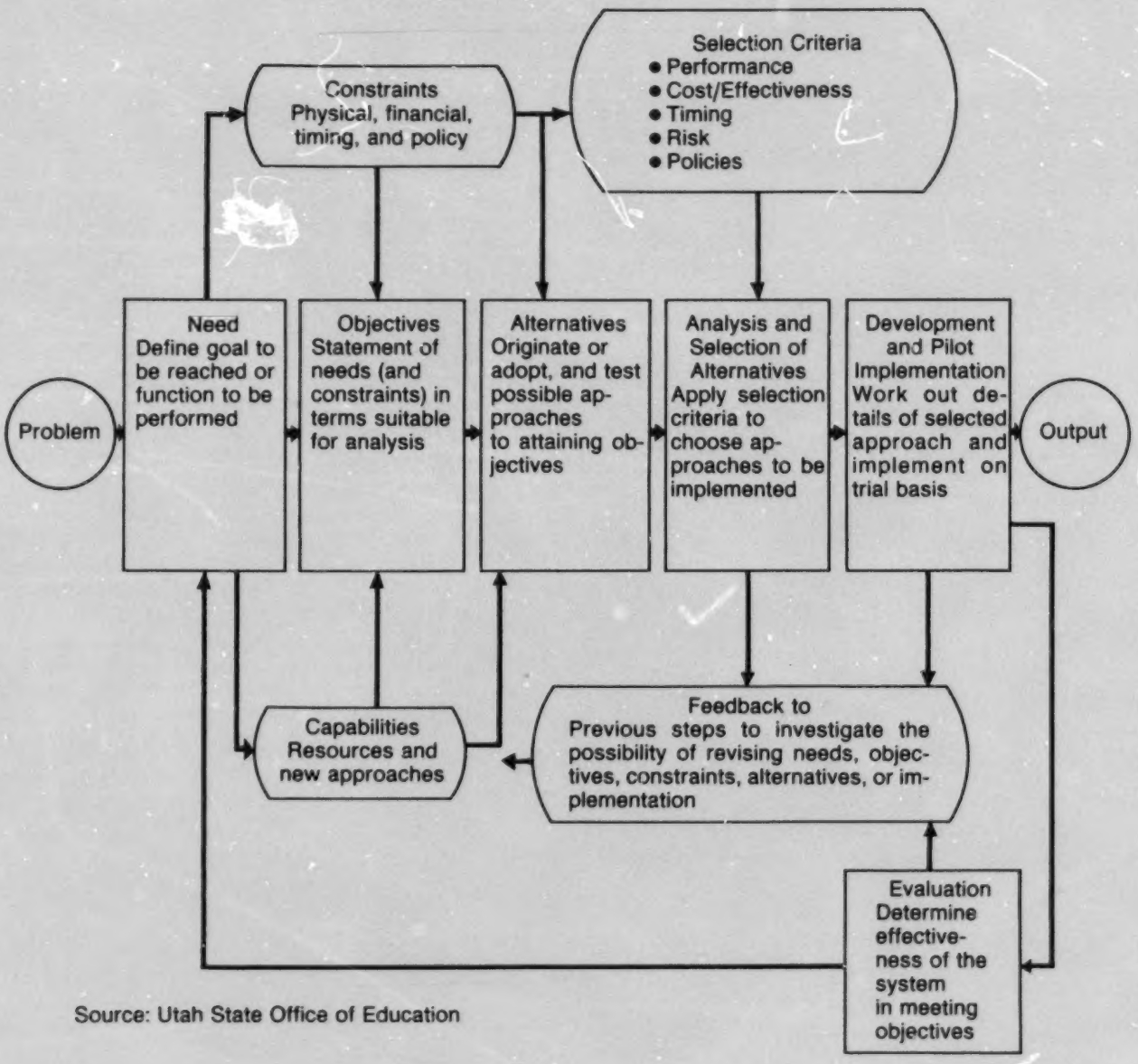
Along with each of the goals was a set of recommendations, some of which were "merely suggestive and others more specific." The committee said it intended "to allow considerable latitude and opportunity" for the staff to "expand, refine, and design the exact nature of any changes implemented as a result of the report."

Setting Goals

Goals and objectives are useful at the beginning of a planning cycle in communicating with staff, community, and other citizens; in negotiating with these groups about what will be accomplished; and in concurring about the activities in which a staff will engage. They also are useful to make the aims and energies of the staff more precise as they go about implementation. On an ongoing basis, they are useful in describing and justifying what the district is attempting to do. Finally, they are useful in measuring how close actual accomplishments come to meeting the specifications of the planned or anticipated accomplishments. For all these reasons, both goals and objectives are needed in a good plan, according to the Utah State Office of Education.

A *goal*, by definition, is general and abstract, global in nature, broad in scope, long-range. It requires considerable time to accomplish. Ideally, the Utah agency notes, a planning endeavor will identify only a few overall goals for the district to work on at one time.

Example: The Systems Approach


Selection Criteria
• Performance
• Cost/Effectiveness
• Timing
• Risk
• Policies
Constraints
Physical, financial, timing, and policy
Problem
Need
Define goal to be reached or function to be performed
Objectives
Statement of needs (and constraints) in terms suitable for analysis
Alternatives
Originate or adopt, and test possible approaches to attaining objectives
Analysis and Selection of Alternatives
Apply selection criteria to choose approaches to be implemented
Development and Pilot Implementation
Work out details of selected approach and implement on trial basis
Output
Capabilities
Resources and new approaches
Feedback to
Previous steps to investigate the possibility of revising needs, objectives, constraints, alternatives, or implementation
Evaluation
Determine effectiveness of the system in meeting objectives

Source: Utah State Office of Education

An *objective*, on the other hand, is a precise means of injecting specifications into a plan; moreover, it lends itself to measurement and quantifies/qualifies how much, how long, how well some specified activity will be pursued. In order to be measurable, however, an objective must be phrased correctly. It should specify an outcome or product, a level of achievement (criteria, standards, or indicators of performance level), and the circumstances under which evaluation will take place. The objective may also include a date by which it will be completed, the person or group responsible for completion, and a rationale.

Needs Assessment

Desired Outcomes – Current Status = Educational Need

This simplification of the concept of needs assessment comes from the Utah State Office of Education. The agency adds that needs assessment might be described as "any systematic procedure for setting priorities and making decisions about the allocation of educational resources." The prime value of needs assessment, it says, "is to front load educational planning."

A needs assessment serves multiple purposes in district planning:

- **Choosing among goals and objectives.** Usually, a district asks a group of interested persons — community members, teachers, curriculum specialists — to communicate preferences about major aims for the district. One way a district can do this is to select and use specific procedures for opinion polling. (Note: Some popular needs assessment models, such as that offered by Phi Delta Kappa, consist primarily of selecting and narrowing goals. For more information on this model, contact Phi Delta Kappa, P.O. Box 789, Bloomington, Ind. 47402.)
- **Collection of information.** Generally, an assessment is made of the major expressed and implied aims or goals of the district. This usually includes hard data about student achievement and availability of resources, and soft data about opinions of current conditions.
- **List of priorities.** These may be derived from rankings of goals or objectives, from measures of discrepancy between actual and desired conditions, from problem statements, or from other indicators of critical needs.

Before launching a needs assessment, the school administration and board should consider costs in people, time, and funds. These should be balanced against requirements and desirability of obtaining the data.

The Utah State Office of Education advises planners and policy makers to discuss these points:

1. What do you need to find out? What kind of information is absolutely essential for your purpose? (You may need one type of information to satisfy local pressures for, say, more "basic education" courses, and another type of information to satisfy the requirements of a funding source.)
2. Can you afford to gather any additional useful information? (Here, the agency advises districts to gather the additional information if it is economically feasible, but to avoid gathering data of marginal use that would be "nice to have.")
3. What data already exist? A check of records, studies, or evaluations may show, for example, how the district compares with others in terms of student achievement, per-pupil expenditure, staff salaries.
4. What standards must the assessment data meet in order to be accepted, believed, and acted upon? Consider: What reliability levels will be acceptable; how large must the samples be and how many measures are needed; and how rigorous must the statistical analysis be? Will the data be acceptable if done internally, or is an external consultant needed? (The purpose and audience for the needs assessment will help determine the answers to these questions.)
5. How much time and money are allocated for the needs assessment? Planners should tabulate the major questions to be answered, the types of data useful in answering the questions, and the sources of such data, and then figure out the costs and time for gathering the data.

Useful Data

In validating or verifying the needs of a district, planners should consider the following types of information:

- Opinion information gathered through polls, surveys, questionnaires from the public, students, educators, non-educators (e.g., what services or courses provided by the district are most valued?).
- Information from community meetings (e.g., town hall, PTA meetings).
- Student input (e.g., on desirable or "worthwhile" electives).
- District test results.
- Recommendations of accreditation studies.
- The judgment of district administrators and outsiders about the trends and issues confronting the district (e.g., changes in college admissions requirements or job requirements) and probable future problems, issues, or changes in public attitude.
- Current philosophy and objectives.

Note: By summarizing information from the above sources and sorting it into two categories,

"what is" and "what ought to be," the district can document needs.

Prioritizing Needs

In any organization, there are, at any given time, more worthy objectives than can be afforded. Thus, says the Utah State Office of Education, "there is a continuing need for prioritization or selection of those problems most serious and those objectives most crucial to the successful, ongoing operation of the organization."

Here are some principles to keep in mind about this phase of the planning process:

- Both the public and staff should be involved *in the early stages of planning* in developing the criteria to be used in prioritizing needs and in the actual ranking of the priorities.
- Explain to participants (public and staff) how each need will be subjected to several criteria. The groups will need to know they may react to, select from, and perhaps even change the suggested criteria.
- If the group feels the criteria and procedures for ranking sound reasonable, move on to consideration of the needs. Note, however, the group may want to spend more time discussing the proposed criteria.
- When the group is ready to consider needs, present those needs identified through a study of the district. Be prepared to consider additional needs or problems, particularly if the community did not participate adequately in the needs assessment activities.

Useful Criteria

What kinds of criteria are useful in prioritizing the identified needs or problems of an organization? The Utah State Office of Education lists the following:

1. **Gap between status and values.** How great is the gap between "what is" and "what should be"?
2. **Number of clients.** Do most students share the need?
3. **Criticality.** Does the problem demand immediate attention?
4. **Interrelatedness.** If this need is satisfied, will it satisfy other needs as well?
5. **Significant consequences.** What are the consequences if the need is ignored; satisfied?
6. **Sequence.** Should this need be satisfied earlier than others in order that they may be solved?
7. **Feasibility.** What is the likely, eventual feasibility of actually satisfying the need, with the resources available?
8. **Expense.** Can the need be achieved inexpensively?
9. **Community support.** Does the need elicit considerable support from nearly the whole community?
10. **Local problem.** Is the problem uniquely critical within your community?

A Checklist for Action Plans

What goes into an action plan, the statement that tells how a district will address the goals and conditions which it identifies as priorities? Here's a checklist:

- ____ **Objectives of the action plan.**
- ____ **Changes to be made.**
- ____ **Activities to be undertaken to make the changes.**
- ____ **Schedule of major activities.**
- ____ **Position and/or titles of person(s) responsible for each activity.**
- ____ **Expected cost of each activity.**
- ____ **Method of evaluating results of actions taken.**
- ____ **Position or title of person responsible for evaluation and the date of completion of the evaluation.**
- ____ **Amount of time needed for implementation.**
- ____ **System for communicating the information.**

Words of Caution

The literature on planning emphasizes the importance of needs assessment and prioritizing needs. But it also contains cautious words to administrators.

Here are some examples:

- A goal survey is not an "end-all" that can stand by itself; rather, it should be seen as a tool that can augment professional judgment, past practice, and other considerations that enter into budget and planning decisions.
- Educators have responsibility to lead the community toward desirable educational goals, not just to cater completely to community desires.
- One way to get community members to narrow priorities, particularly in times of budget

cutting, is to "give" them a specific dollar figure and have them assign a dollar amount to each desired goal. (Note: this technique is used successfully in helping school districts define their goals by Policy Studies in Education, a New York City consulting firm headed by Henry M. Brickell.)

- Districts should place equal emphasis on defining goals for elementary schools, as well as for secondary schools.
- The findings of a needs assessment in one community cannot be applied to another community. Each one is different.
- Worthwhile survey questionnaires are very difficult to construct and may require the services of a professional.

Planning Essentials: Accurate Information, Assumptions

The importance of using accurate and up-to-date information, combined with educated guesses ("assumptions") about the future, cannot be overemphasized. What is at stake in many districts is the ability to offer students a quality education.

Even with accurate information and a good guess about the future, however, a long-range plan can fall apart because of events beyond the control of the school district.

A case in point is Joint School District #391 in Kellogg, Idaho. The district submitted along with its completed survey form for this report its plan for improving the quality of education in the 1980s. The report is optimistic and includes plans to expand community involvement in the schools, to enrich individual school programs and the general curriculum, and to improve counseling services, the library and other facilities.

An interview for this report with Supt. Bob Dutton revealed, however, that many of the district's plans have been reversed. "The district is now in a retrenchment mode; it's back to basics for us." The reason: The main industry in the town, the Bunker Hill Mining Co., had been sold and closed down. Consequently, the town had a 33 percent unemployment rate, and the mood was grim.

Some other superintendents expressed caution or pessimism about their ability to calculate what the future holds. John J. Byrne, superintendent of the 9,200-student Council Rock District, Richboro, Pa., said his district, in trying to project enrollments as part of planning, takes into account "common sense knowledge" of the district and educated guesses based on all of the factors known from experience. But, he says, "when someone can answer what the state of the economy, mortgage rates, or birth rates will be, then the projections will have some validity."

In the meantime, some critics maintain that educators fail to do a sufficient job of "scanning the environment" — to use one critic's words — to identify significant societal changes and trends and to translate these trends into demands on the school district.

What kinds of trends does one watch for? Here's one list:

- Increases or decreases in financial support.
- Inflation rate.
- Energy and transportation costs.
- Changing level of support for public and nonpublic schools.
- Condition of buildings and equipment.
- New curriculum demands (such as incorporation of new technology).
- Public demands for greater emphasis on areas such as science, math, foreign language.
- Alternative methods of providing services, such as through regional schools or social service agencies.
- Changes in student and adult composition of community (e.g., more non-English speaking persons making demands for basic skills training and bilingual education).
- Possible consolidation of smaller school districts.
- More single-parent families, creating needs for baby-sitting/day care facilities, a 12-month schedule of education/care, more counseling services, and teacher inservice training.
- Age and experience of school teachers; alternate methods of hiring or training persons to fill vacant positions in areas such as math and science teaching.
- Possible restructuring of school calendar (e.g., more hours spent in school each day, more days each year).
- Increasing costs of public education, which will generate public demands for greater productivity.
- More mainstreaming of children with special needs.
- Changes in society in the 21st century toward more service-career oriented jobs, and more leisure time.

- Sharp increases in the number of older citizens, with greater emphasis on services and programs for them.
- Increasing demands for mid-career training.

Using Assumptions: Example #1

The 2,500-student Whitefish Bay (Wis.) Public Schools believes in the importance of using assumptions about the future as a key element in its long-range planning process.

"From these assumptions," the district plan notes, "future concerns can be identified and specific goals can be developed, based upon the priorities of the school system and its financial ability to support the goals."

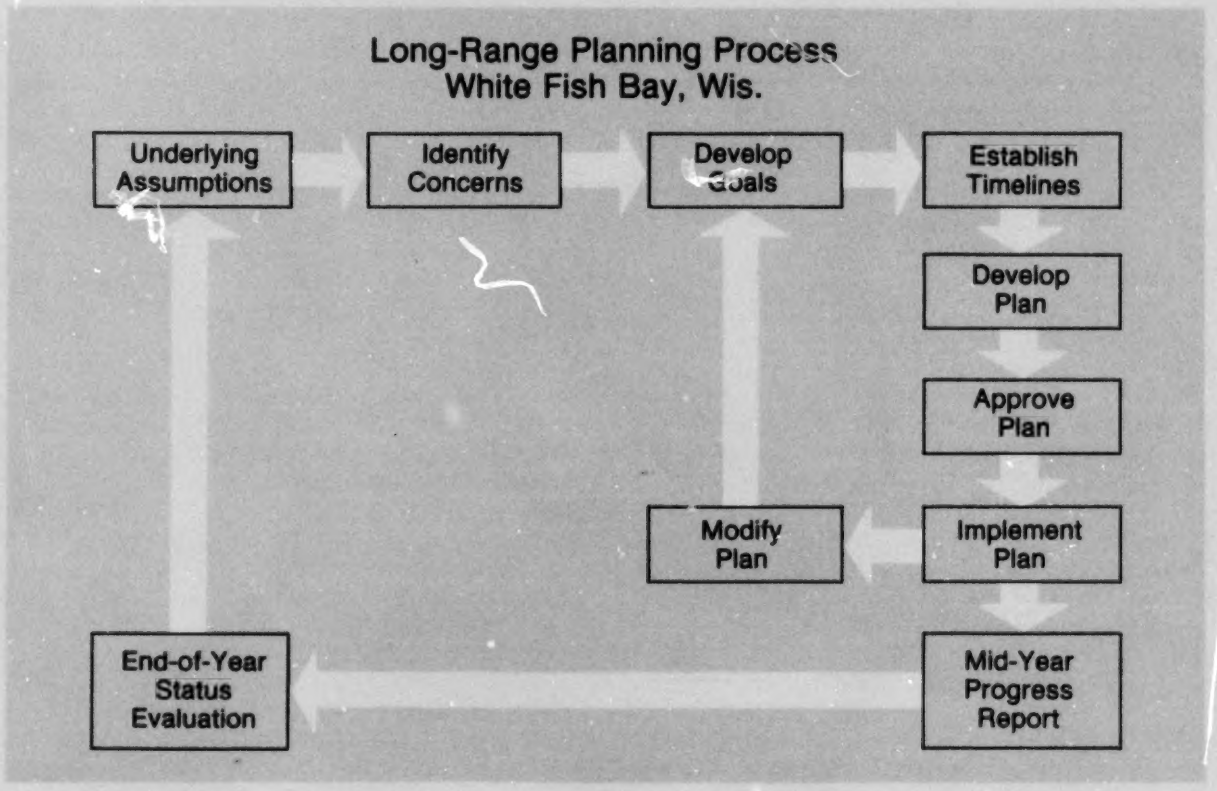
The district divides assumptions into seven categories: personnel, enrollment, needs assessment, educational programs, facilities, finance, and community.

In the category of personnel, here are the district's assumptions:

- The age and tenure of the staff will continue to rise.
- Continuous and in-depth staff development will be needed to help upgrade staff skills.
- As a result of declining enrollment, staffing patterns will change.
- There will be a shortage of qualified teachers in some areas of certification over the next five years.
- "Good and sufficient" substitute teachers will be more difficult to find.
- Staff reductions will continue for the next five years.
- Teachers may seek to embellish programs to protect jobs.
- Federal laws and mandates (e.g., P.L. 94-142, the Education for All Handicapped Children Act) may cause staffing problems over the next five years.
- Uncertainties regarding social security and retirement benefits may serve to counteract efforts to provide early retirement incentives.

The plan may be modified at any time. If modification occurs, the district notes, new goals are developed and the regular planning process continues.

The process includes both a mid-year progress



report and an end-of-year report on the status of all plans. This process, the district says, generates a "rolling plan," and each year a new plan is formulated for the succeeding five years. In other words, the plan is updated and extended each year.

As the district concludes in its plan, "the assumptions must be regarded as 'educated guesses' about the future. Obviously, they will be subject to change as circumstances change and as more data become available. Tentative as they are, however, they do provide a basis for planning the future of the district."

Note: See the illustration of the long-range planning process used by the district.

Using Assumptions: Example #2

The five-year projections for the 11,000-student Smithtown Central District #1, St. James, N.Y., are based on historical experiences and an estimation of future trends. The district projects a 33 percent decline in total enrollment from October 1980 to October 1986, but no decline in the percent of students enrolled in special education classes.

In staffing, the district projects a 26 percent decrease in the number of teachers and librarians, an increase in special education personnel, no change in central administrative staff, and a decline in physical plant maintenance and custodial staff. Concerning the latter item, the district estimates a smaller decline in repair workers than custodians because it will be using fewer classrooms and buildings, but the older equipment and buildings in use will require more maintenance.

In the plan, which was developed in July 1981, the district anticipates a 2.7 percent average annual increase in salaries for the five-year period, but an 8 percent increase in staff benefits. Thus, while staff benefits were adding about 32.5 percent to the district's personnel costs at the time the plan was developed, they will add 40 percent to personnel costs by 1985.

With regard to these increases, the district explains that salaries are a negotiated item for teachers, clerks, maintenance workers, and most administrators and, as a result, "the district cannot unilaterally determine compensation schedules to keep them in balance with a constant tax rate."

Included in the plan are several options for meeting the additional personnel costs: namely, decreased staffing and a reduction in debt service payments.

Note: Smithtown's long-range projections of costs are useful not only in planning but also in explaining to the community that education costs do not go down simply because a district is serving fewer students.

Also note: In some states and sections of the country, enrollment is increasing due to in-migration, new jobs, and other reasons. School districts in these areas must exercise as much care as districts with declining enrollments in making assumptions and developing plans for the future.

Generating Solutions

In the phase of planning in which ideas for solutions are generated, any constraints or limitations should be disregarded initially, according to the Utah State Office of Education.

The intent should be to identify many possible solutions. Another aim for school planners should be to encourage fresh and open thinking — before a "favorite" or "best" or "only" solution becomes locked in the minds of decision makers.

Some techniques to generate solutions include:

Brainstorming. In this activity, all ideas or contributions should be acceptable, and all persons involved should be expected to contribute solutions. Ideas should be posted for all to see as they are generated. The aim is to come up with a great number of ideas.

Independent team approach. Teams of two to four persons can "compete" against each other in coming up with solutions to a particular problem. Solutions should be developed well enough so that they are understandable to others on the staff. Then, one approach would be to have another group comment on the proposals. (The proposals should be identified as A, B, C, without identification of the authors.)

Charette. This is a structured brainstorming approach with deadlines, problem-solving strategies, and a final product. The latter element distinguishes this technique from the other two. The final product should be a formal document which contains the ideas generated by the participants, as well as a summary of the activities and findings of the group.

The process takes place over a fairly structured time schedule, requiring several hours or even one or two days, depending on the scope of the issue.

A Planning Checklist for Staff/Community Involvement

If your district wants to involve staff and community in long-range planning efforts, you'll need to do some planning for best results. Here are some questions to guide your planning:

If you intend to use advisory councils or committees

____ How many councils or committees will be formed?
____ What tasks or functions will the councils/committees perform?
____ To whom will they report?
____ How will community and staff members be selected?
____ How will members be oriented to their tasks?
____ What will be their relationship to the school board, school administration, total school staff, and the public?
____ What representation is appropriate for each committee?
____ How will they be governed?
____ What means of communication will be used among the groups?
____ What timelines should be set?
____ How will committee results be documented and publicized?

If you intend to use a survey

____ At what stage of long-range planning will the survey be implemented?
____ What questions will be asked, and for what purpose?
____ What audiences will be surveyed (students, board, staff, parents, citizens)?
____ What sampling procedures will be used?
____ What survey methods will be used (interview, telephone, mail); what will be the format (open-ended, yes-no)?
____ How will the data be processed?
____ What resources will be required?
____ How will the survey report be written and used?

If you intend to use public hearings or meetings

____ What information will be presented and discussed, and for what reasons?
____ Who will be invited?
____ How many meetings will be needed?
____ Where and when?
____ How will the meetings be publicized?
____ What materials will need to be prepared?
____ How will the meetings be conducted?
____ What outcomes are desired of the meetings and why?
____ How will the outcomes be used?

If you intend to use general communication procedures

____ What communication channels will be used with the public?
____ What communication channels will be used with the staff?
____ What timelines are required for communication activities and how do these affect overall administrative planning?
____ How will the outcomes of committee meetings, surveys, or public meetings be documented?
____ How will they be publicized?
____ What resources will be needed to implement the communication procedures?
____ What format will be used to describe ongoing community/staff involvement in long-range planning?
____ What committee or staff members will be responsible for organizing the action plan?

Finally, you'll need to consider next steps, if the public or the advisory councils or committees make recommendations that call for changes in school policy.

Source: *Long-Range Planning for School Improvement: Planning for Community/Staff Involvement;* Pennsylvania Department of Education, Harrisburg.

Participants in this process should be divided into groups, with each group having a leader and a synthesizer. The leader keeps the group on target while the synthesizer keeps records of what is discussed.

After each small-group meeting, the results are reported to all participants in a joint session. Each report is criticized by selected participants, and conflicting reports are reconciled by special subgroups. The brainstorming and reporting activities are repeated until all aspects of the topic have been covered and the written end product is completed.

It is important to note that solutions generated through any of these techniques may have to be eliminated when they are judged against criteria or standards. The Utah education agency notes, however, that the "increase in quantity and innovativeness of ideas created through use of an unfettered exercise is well worth a little extra time for comparing ideas against criteria later."

The kind of criteria used to judge the proposed solutions could include: a cost ceiling; a ceiling on start-up time; degree of probable acceptance by the board of education, administrators, supervisors, teachers, and other groups; limitations on the amount of time the proposed solution would add to staff responsibilities; gauge of effects on children; potential for improving parent relationships and interaction with the school; meshing with other programs; impact on schedule or course requirements; and record of effectiveness of the solution in other districts.

Why spend a lot of time in planning and involving various groups and individuals? One observer, in considering that question, noted that the Japanese spend a long time in planning and involving people and a short time in implementing recommendations. American leaders and executives, he noted, generally spend little time in planning and are forever implementing.

Setting Priorities

When a district, large or small, thoroughly scrutinizes its operation to determine future directions, it may come up with a list of proposed new programs in addition to those already in operation. How do you decide which to fund, which to drop, in order to provide the best possible education for students?

In making decisions about a specific educational program, wise administrators give due weight to the advice of the person responsible for the program. Otherwise, why pay for the expertise this person offers?

One helpful system for setting priorities comes from the Minneapolis Public Schools. (See the case study that follows.) Based on its revenue and expenditures, it projected a $98.6 million accumulated deficit over the five-year period 1982-87. To deal with the deficit, district planners recommended use of a "framework for budget decision making," a process adapted from one used by the city of Minneapolis.

The framework can be used as a guide for the development, discussion, and evaluation of budget proposals by the board, administration, citizen advisory groups, or others involved in the budget process. The framework should be reviewed and revised annually to assure that it reflects current priorities.

Under the framework, two types of criteria are applied to budget items. First, a budget proposal is judged in relation to the overall priorities of the district and is assigned to a *priority area.* Then the proposal is judged by *other criteria* according to how necessary it is to achieving key objectives of the district and how well it meets those objectives.

Priority areas are defined this way:

1. Essential to maintain the educational program. The kinds of questions to ask here would include: Does the expenditure ensure adequate achievement in basic skills, equal access to educational opportunity, diversity of programs and curriculum? Does the expenditure help the district meet legal requirements? Does it provide acceptable services to special populations?

2. Essential to improve the educational program. Once the district knows the basic educational program can be maintained, resources can be focused on areas to make any improvements that are recommended through a planning process.

3. Desirable to improve the educational program. The district may want to consider other programs or actions which were not specifically recommended through a planning process, but which would result in an improved program. To illustrate, consideration would be given to programs that enhance the learning environment; that provide activities or alternatives in instructional styles in addition to those generally regarded as essential; or that provide services or programs above the basic level to special populations.

Issues Management — A Way To Deal with the Future

Educators often find themselves reacting to issues they didn't create — but must deal with. Managers of large companies often find themselves in the same spot. Recently, however, some of the large companies have started to use a strategy — *issues management* — that helps them get ahead of issues.

Issues management can also be used effectively by educators, according to Donald L. Ferguson, vice president of ENTERCOM, Denver, Colo.

An effective issues management program, he says in the February 1983 issue of *The School Administrator*, "identifies issues early and interjects our positions to influence their direction while that opportunity exists." In other words, you find out what is going on soon enough to do something about it.

Otherwise, Ferguson says, pro and con groups form around issues, the media begin to fan the issue, and the persons or organizations most affected by an issue have no control over it.

Ferguson categorizes issues as current, emerging, or ongoing. An example of an emerging issue, he says, is a coming teacher shortage and its impact on hiring quality staff.

Ferguson offers these tips to districts interested in starting an issues management program:

- The superintendent and the board must support the program and be willing to assign staff and reasonable resources to it.
- They must be willing to devote time to setting priorities and providing leadership to the effort.
- A task force of six to eight persons should be established. Ferguson says issues management is appropriately a "school public relations/communications leadership function" that can involve other members of the school team, such as personnel representing curriculum, state and federal relations, and staff development.
- Possible issues should be identified by teachers, administrators, other employees, business and community leaders, parents, students, and others.
- These people should gauge the impact of each issue on the district (e.g., "critical," "major," "minor," or "unknown").
- The task force should consolidate the issues and prepare a list for consideration by the school administration. Modern technology such as computers ease the tracking of a large number of issues at one time, Ferguson says.
- A briefing paper should be prepared on each issue of "critical" priority. It should be reviewed by appropriate management and submitted to the task force for review and the development of recommendations for policy or action.
- The strategies should be implemented by the appropriate offices, coordinated by the chairman of the task force, and monitored by the task force.
- All strategies should be regularly evaluated and updated.

4. Desirable to achieve other district objectives. The district may want to consider progams or actions that were not specifically recommended through a planning process, but that would help it achieve desirable objectives, for example, promoting community confidence in the public schools.

5. Not qualified but of no significant cost. Here, the district may want to implement immediately those programs with attractive cost/benefit ratios that are consistent with the district's philosophy, irrespective of where they fit in the priority categorization. (An example could be to improve the accuracy and efficiency of personnel record keeping.)

The "other criteria" are defined this way:

A. Degree of necessity. Here the questions to answer are these: How necessary is the proposal to the achievement of key objectives? Are alternatives available to the people inside or outside the school district to be served by the proposal?

B. Timeliness. To what extent would the proposal assure timely achievement of specific annual objectives related to or necessary for achieve-

ment of the objectives identified during the planning effort?

C. Directness of impact. How directly does the proposal impact students? Do students benefit directly from new services proposed? Would reduction or elimination of this service impact upon students?

D. Cost effectiveness. What is the cost of the proposal in relation to the number of students benefited? Are the objectives of the proposal reasonable and consistent with the resources being requested? What is the long-term impact on operating costs? Would future resources be committeed in other ways? Would outside funding be used or would local tax support be required?

How To Use This Method

All proposals would be ranked within the priority areas based on their relative degree of necessity, timeliness, impact, and cost effectiveness. Proposals would then be ranked according to a scoring system which would take into account both priority ratings and ratings from other criteria.

Each proposal would be assigned a total score, and the size of the available budget would determine the cutoff point between proposals that are and are not funded.

Effective use of this system takes skill. The Minneapolis district cautions that the system does not provide easy or automatic answers. "Those who rate proposals will introduce their own values depending upon their personal perceptions and the skill of the writer of the proposal."

An ongoing citizen advisory group could use the framework as a tool for reviewing the administrator's budget proposals. Their work could then be used by the administration and the board to make budget decisions.

Case Study

What happens when a district gives more than lip service to planning? How involved is the process? The following case study of long-range planning by a large district is featured here to provide some answers to those questions.

In 1982, the Minneapolis Public Schools adopted a five-year plan which covers virtually every aspect of school life in the 39,000-student district. Included in the 200-page planning document are strategies for dealing with the district's future in terms of desegregation/integration, educational alternatives, the school calendar, grade organization, staffing patterns, technology, climate for learning, personnel, organization, facilities, communications, citizen involvement, and financing.

The plan points out that with a budget of $175 million annually and $400 million in capital resources, the Minneapolis district is one of the city's largest employers "and is concerned with the same question which concerns any large industry: 'How can we best organize our people and our capital resources to get the job done?'" It then concludes that reorganization is necessary to accomplish the educational mission at less cost.

When the district was last reorganized in the 1970s, the plan notes, it was serving 60,000 pupils. It had a decentralized organizational structure "which fits a growth mode." But with 21,000 fewer students and an anticipated drop of another 4,000 students (to a total of 35,000) within five years, "a different structure and management style are appropriate," the plan says.

It calls for a "lean and trim" organization, with clear reporting lines, job definitions, and lines of authority, and strong central leadership to make budget cuts, implement building closings, and generally "do more with less." District resources must be focused on the classroom, it says, and the administrative structure of the district must be reduced.

Those conclusions were reached, however, only after the district spent two years reviewing every aspect of its operations.

The Planning Process

In the summer of 1980, Supt. Richard Green, newly hired to head the district, stepped into a situation where numerous plans from citizens groups, primarily concerned with declining enrollment and educational accountability, were already in hand.

But, as the five year plan notes, "No forum had been provided where the board and administration could look at all of the elements of the school system in relation to their impact on individual student learning achievement. There had been no coordinated planning to set across-the-board priorities which would determine a consistent pattern of program and budget decisions."

In such a situation, how does a new superintendent plan for the future?

First, Green made a commitment to the board to work on a long-range plan. He appointed a planning council made up of school administra-

tors to take the lead in planning development. This council worked with the board of education to develop a list of 58 "planning assumptions." Next, the superintendent sought financial support for development of the plan from the Minneapolis business community through the Chamber of Commerce. With the realization that the future of the city was closely tied to the future of the school district, the business community provided $100,000 for the district's long-range planning effort.

With part of the funds, the superintendent hired a planning coordinator from the city's planning department to work with the board and staff on an initial comprehensive plan.

Because of the massiveness and comprehensiveness of the plan under development, the board and the new planning coordinator established four "planning cycles" of overlapping four- to six-month periods to address different aspects of school operation. The total amount of time allotted was approximately 16 months. Cycle 1 dealt with decisions affecting the educational program; cycle 2, decisions affecting staff; cycle 3, communications, facilities, and finance.

A draft report was prepared following each cycle, and all three drafts were then incorporated into the total five-year plan. Following a series of public hearings, the board adopted the plan in April 1982. Cycle 4 required preparation of an implementation plan.

The district summarized its planning strategy as a 12-step process:

Step 1: The planning coordinator and the planning council appointed by the superintendent defined the strategic planning issues to be addressed in each planning cycle.

Step 2: School staff and outside experts with knowledge appropriate to the topic developed a discussion package concerning an issue or set of issues for presentation to the board. Thirteen planning teams, each led by a district administrator, produced 13 discussion packages. The packages included pertinent information and the choices facing the district in areas such as desegregation, educational anternatives, the school calendar, staffing, technology, communications, finances, and organization.

Step 3: Each team presented its package to the planning council for review and comment.

Step 4: The team presented the discussion package to the board for informal consideration and discussion.

Step 5: The team presented the package to assembled principals, teacher representatives, and chairs of area advisory committees shortly after initial board consideration. These staff and community representatives then discussed the

Outsider Brings Neutrality, Good Planning Skills to Minneapolis

The Minneapolis Public Schools got a considerable boost with its planning effort when it hired a planner from the city planning office. Through the efforts of Supt. Richard Green, the city's corporate world committed $100,000 to a five-year school improvement plan. Part of the money was used to hire the planner for the specific job of coordinating the district's long-range planning effort.

The planner, who worked for the district for approximately 18 months, was hired on a temporary basis. This was helpful, said Kenneth Northwick, a member of the superintendent's cabinet, because "she was no threat to anyone or their jobs."

Another plus for the district, in Northwick's opinion, was the planner's neutrality. "All divisions and directors in a school district, as in other organizations, defend their turf," he explained. "She wouldn't tolerate the turf thing.

"In addition, she had already been through the planning process with the city, so she could tell us what to expect. She also brought up things we had not even thought of," Northwick added. "We had become closed in our thinking and provincial. We also have to give her credit for keeping us on course and on a time schedule."

One gauge of the success of the planning effort: The district was able to close 18 schools, including two senior high schools, within one year after the planning effort started, and to do so with a 7-0 affirmative vote of the board.

topic within their own communities.

Step 6: The planning coordinator prepared a written discussion package based on each team's presentation. It was widely disseminated to staff and community representatives and to interested groups and individuals. The printed package included a response form on which either groups or individuals could express their views on the topic.

Step 7: The planning coordinator collected and summarized responses to the printed discussion package. The summaries were made available to the board, council, and other interested persons.

Step 8: The planning coordinator worked with each team in drafting a formal plan for the issues described in its discussion package, taking into consideration the board's "sense of direction" on the issues in the package.

Step 9: The board reviewed and discussed all of the drafted plans.

Step 10: The planning coordinator revised the drafted plan based on board review and comment.

Step 11: The board approved the plans at the end of each planning cycle.

Step 12: The planning coordinator prepared a complete plan for adoption and publication following the third planning cycle in the spring of 1982. The plan was printed in a format which allows for ongoing addition and revision. The district noted that continuous updating would be required during the five-year life of the plan to adapt to changing conditions and expectations in the district.

Organization of the Plan

Minneapolis' five-year plan starts with the board's overall *"mission statement"* — a broad statement of the district's direction for the five-year period. All areas of concern are addressed within three broad sections of the plan: "educational program," "learning environment," and "organization of resources." *Goal statements* introduce each of the three sections, followed by the board's *"sense of direction"* on the areas covered within a section, and then by an *"action plan."*

Also included in the document are background data on pupil enrollment, personnel, and basic skills objectives. Not included is a separate implementation plan, which provides a timetable and procedures for putting the plan into effect, monitoring, and ongoing planning.

The mission statement. After lengthy discussion and consideration, the Minneapolis Board of Education developed the following statement of its educational mission:

The primary mission of the Minneapolis Public Schools is to ensure equal access to an excellent educational program in an integrated environment so that students are challenged to reach their highest intellectual potential. Resources will be directed to ensure that students will develop the communications skills (reading, writing, speaking, and listening), mathematical and problem-solving skills, study skills, and citizenship skills necessary as a foundation for living in a changing society.

The goal statements. Introducing the plan's section on Minneapolis' educational program is this statement of the board's long-term goals:

The school district will develop and implement an articulated, integrated, and coordinated educational delivery system for all students. The key element of the system is the curriculum, which will be developed centrally based on the developmental needs of all students and supplemented by a system of interventions and strategies to assist each individual student to reach his/her highest potential.

All educational services in the school district must be integrated and coordinated . . . The more inclusive the curriculum, the more it meets the developmental needs of all students and the less need there is to allocate resources to categorical programs such as Title I, special education, Indian education, equal education . . . because the needs of students are met in a classroom support model . . .

Sense of direction statements. In these statements, the board more narrowly defines its goals and includes objectives for the district. Under "basic skills and life skills," for example, the board's sense of direction statement calls for:

Continuous assessment of achievement in five basic skills areas. The student should:

1. Understand the communicator's message by listening, reading, and viewing critically.

2. Use spoken, written, and visual communication appropriate in form and content for the intended audience and situation.

3. Use appropriate computation and mathematical processes.

4. Use appropriate strategies for acquiring, organizing, and evaluating information; clarify issues and solve problems.

5. Understand, respect, protect, exercise, and

promote the rights and responsibilities of a contributing member in a democratic society.

In this same statement the board also reflects its belief that technological literacy is a basic skill:

Technological literacy, the product of teaching about new information tools, has become a basic skill for living in the future. The Minneapolis Public Schools will develop the technological literacy of its staff and promote the use of technologies to support instruction so that it will be prepared by the end of the five-year planning period to assure student achievement of technological literacy as a basic school and life skill.

Action plan statements. These statements, which follow the sense of direction statements, tell how the district administration intends to fulfill the board's wishes.

To illustrate: The actions planned to meet the board's expectations in the basic skills areas include curriculum development (the administration calls for centralized curriculum development in all subject areas as they relate to basic skills outcomes); more emphasis on testing (including the development of locally developed cirterion referenced tests, which the district calls "benchmark tests," to supplement the citywide assessment program); piloting of a four-phase data-based management system for monitoring student progress in basic skills in order to provide teachers with immediate turnaround of testing results and to provide individual progress reports to students and parents.

The five-year plan continues in this vein of stating what needs to be done, how the district plans to do it, who will carry out the plan, when, and with what expected result.

When Your Plan Is Finished . . .

Once your long-range plan is completed, you should put it into a form that offers not only a good explanation of the plan but also how and why it was developed.

Anyone picking up the plan should be able to see who was involved; what was the basis for decisions; when the plan will be implemented, how, and with what results.

How would a plan look in finished form? Here's one suggested outline:

- **Background information about the district, the educational program, the staff, the facilities.**
- **The district's mission statement.**
- **Goals and objectives.**
- **Explanation of the planning process: calendar of events, who was involved and how, proposals emerging from various groups, how agreement was reached.**
- **Details of the plan, including budget.**
- **Recommendations for priority areas.**
- **Implementation strategies.**
- **Appendix: supplementary information such as results of surveys or public opinion polls, detail of internal and external factors taken into consideration in planning, lists of involved groups or individuals.**

Directions for the Future

Many of the changes experienced by the Minneapolis district are not unlike those in other urban districts nationwide. Thus, the plan would be of interest to other large districts facing similar problems.

Its usefulness, however, is broader in scope. Responses to the survey for this report indicate that most districts, large and small, share similar concerns and problems and are looking for ideas to deal with them.

Of particular interest in the Minneapolis plan are some new directions outlined by the district. The plan emphasizes the need for: better communications to build public support, better training and accountability for principals, and extensive commitment to computer education.

Details on these and other directions follow:

Communications/building public support. The five-year plan recommends the hiring of a full-time public information and communication person to be housed in a new "Office of Community Development and Community Relations" with responsibility for communicating information about the schools to clients, for supporting strong community participation programs, for fostering partnership with the business and labor community, and for providing liaison with other governmental agencies.

In order to promote the district as one offering "a range of educational program options without equal in the state," the plan calls for development of brochures describing the programs, staff, and unique aspects of each school; widespread distri-

bution of the brochures through, for example, churches, community and child care centers; advertising on billboards and bus posters; videotape presentations on school programs at neighborhood locations, conventions, and school lobby areas; and coordinated speaking engagements for district staff.

To improve internal communication, the plan recommends a computerized newsletter to provide information to and from all schools; school newsletters for each building; parent handbooks containing districtwide and school building policies; sponsoring of town-hall meetings twice a year to discuss education issues; a hotline to provide daily updates to staff; working with "key communicators" (opinion leaders in the schools and the community); a computer-assisted calendar of all events in the district, available on every school's microcomputer; and conferences aimed at building communication between the superintendent and district personnel.

The plan also recommends hiring a person to be responsible for raising funds for the district from corporations and foundations.

Staffing: The plan recommends cutbacks in the number of personnel working outside the classroom — by eliminating the district's area offices, cutting back on the number of principals and custodians through school closings, scaling down the size of the superintendent's cabinet, merging departments, and screening all certificated staff not affiliated with school buildings (e.g., resource teachers or counselors on special assignment).

Also proposed is the establishment of a department of human resources, whose functions would include personnel, management of the district's teacher center, and development of a five-year personnel plan.

The plan notes that "the single most important factor in effective schooling districtwide is the quality of leadership offered by the school principal." Therefore, it provides for negotiation of an annual agreement between the principal and the associate superintendent to whom he or she reports. The agreement would cover building priorities for curriculum and staff development, a staffing plan, a budget, and a statement of building discipline policies.

Computer education: This is one area of the plan in which the district recommends additional expenditures. The aim: to provide technological literacy for all students in the district by 1986-87. In addition, the plan recommends extensive commitment of staff and capital equipment to develop a data-based, computerized management system for monitoring student progress. To achieve its goal of at least one computer unit per classroom by 1986, the plan calls for the purchase of 50 to 500 units per year, to reach a total of 2,005 units by 1985-86.

Services to the community: The district anticipates serving 3,000 children or approximately 14 percent of its K-6 enrollment in its "Latch Key" program by 1986. The program provides affordable day care for elementary school children of working and student parents within the school setting.

Although the population in the city of Minneapolis is decreasing, district planners found more adults attending classes in lifelong learning activities, primarily due to the rapid immigration of Indochinese refugees. The planners conclude that meeting the needs of senior citizens in the city would become "critically important" and they recommend working with the city and with business and labor to support extension of services to this age group.

Quality education: District planners recommend stiffening of the promotion policy by eliminating "social promotion" and by establishing a citywide policy of "promotional gates," which require students to demonstrate achievement of certain skills at certain grade levels. The plan also calls for phasing in a new promotion/retention policy and of redefining high school graduation requirements, beginning with the 1984 graduating class. Because the requirements would limit students' opportunities to take electives, the planners recommend the addition of a seventh-period option for both junior and senior high school students, to be offered before or after the regular school day.

Chapter II

Demographics

One way to look at the future is to let the numbers speak for themselves. Though demography may be, as one demographer admitted, no more exact a science than economics, some numbers are clear and precise predictors of the future. For example, the number of babies born in 1982 is a pretty good indicator of the size of the first grade class of 1988. It is also a strong indicator of the high school graduating class of 2000.

But significant changes can occur over relatively short periods of time, most importantly, the birth rate. In the past 15 years, the average number of children born to the average woman has fallen considerably, to the point the birth rate is "below the level needed for the natural replacement of their generation," according to the Census Bureau. In 1967, married women between 18 and 34 said they expected to have, as an average, 3.1 children. Just four years later, women said they intended to have an average of 2.6 children. And in 1980, the averge was 2.2. Younger women, those 18 to 24, said in 1980 they anticipated having an average of 1.9 children.

Although the birth rate has fallen in recent years, it has also risen during recent American history. The birth rate fell sharply during the Depression, but rose again after World War II. Demographers can guess the birth rate in the same way stock analysts can guess whether the Dow Jones average will rise or fall over the next decade. Demographers can tell us much about what is ahead for the next decade or two — to the year 2000. But most demographers wisely shy away from forecasting birth rates.

With that caveat, the demographics in education point to a series of important trends for the next 10 to 20 years. These include:

• **An end to the decline in the elementary school population** in 1982-83 and the beginning of a steady rise in the number of elementary students through the rest of the decade. Demographer Harriet Fishlow forecast "there will very likely be as many children in elementary school in 1995 as there were in the peak year of 1970, before the current decline."

• **A steady drop throughout the decade in the number of high school students.** The forecasts call for a precipitous drop in high school students of nearly 25 percent between the peaks of the late 1970s and 1990. But after 1990, high school enrollment will begin rising again.

• **A shortage of teachers,** first in areas such as math, science, and bilingual education, and spreading to most other subject areas. Elementary teachers will shortly be in great demand. College students of the 1970s heard well the forecasts of the demographers and school planners about teacher surpluses and falling enrollment, and they avoided education. Between 1969 and 1975, for example, the percentage of college freshmen planning to go into careers in elementary or secondary education dropped from 22 percent to 6 percent. That sharp drop-off is now being translated into a teacher shortage in some areas, which will grow worse as enrollments head upward.

• **A continuing shift of the American population,** away from the Northeast and upper Midwest to the South and West. Big cities will continue to shrink in most areas. However, while the core cities lose population, most metropolitan areas will continue to grow. The Census Bureau recently reported 95 percent of Americans either live in, or are within commuting distance of a

metropolitan area.

• **A minority school population that in many areas will become the majority.** During the 1970s, the black population in the United States grew more than twice as fast as the white population. And the number of Hispanic Americans is increasing even faster. By 1990, Hispanics are projected to be the largest minority group.

• **A burgeoning number of single parent homes.** Between 1970 and 1981, the number of children living with only one parent doubled — to about one in five, the Census Bureau reported. A majority of black children — 51 percent — are in single parent homes. The rate of family breakups will most likely slow, but few experts are predicting a turnaround. Because of divorce and remarriage, some experts say one-half of all children will spend at least part of their childhoods with only one parent. And, the number of out-of-wedlock births more than tripled between 1950 and 1980.

• **A doubling between 1976 and 2020 in the number of elderly Americans** — whom one educational planner called, perhaps optimistically, the "senior learners." It is this group of citizens who will exert increasing influence at the ballot box.

• **Continuing sharp growth in the number of working mothers during the 1980s.** Between 1970 and 1980, the percentage of children under age 6 with working mothers jumped from 29 percent to 43 percent. Of children under 18, approximately 53 percent in 1980 had a working mother, up from 39 percent in 1970. Because of generally tight budgets, most school systems have not been able to, or chose not to enter the day care market. Nor could they offer more after-school programs. But a demand for such services remains one that should grow in the years ahead.

A Closer Look

What the numbers say is that the era of declining enrollments is now largely behind us.

"The changes for the 1980s," said the National Center for Education Statistics (NCES), "are expected to be in the opposite direction of the trends experienced in the 1970s."

The decade of the 1970s was the era of declining enrollment for American education, particularly at the elementary level. "During the past 25 years (before 1980), the number of births increased to the highest point (about 1957), then decreased rapidly to about two-thirds the number in the peak year," NCES noted in its 1982 *Condition of Education* report. Enrollment increased at all grade levels in the 1960s, often growing by 2 to 4 percent per year, and "subsequently declined or stabilized during the 1970s."

Elementary school enrollment hit a peak of 34.0 million in 1969 and has been falling ever since. The early 1980s are still seeing a gradual decline in grades 1-8, but in 1985, the number of elementary children should bottom out at 27 million. This huge decline, about 18 percent over the 15-year period, has had a profound impact of which most educators are well aware — closing schools, laying off of teachers, and scaling back budgets.

But at the elementary grades, the 1980s should be another era of growth, not perhaps matching the 1960s, but still a time of substantial and steady increases in enrollment for the typical elementary school. The word "typical" here is crucial because, of course, some areas will still decline while others boom. Even during the severe declines of the 1970s, Western states such as Arizona, Idaho, Nevada, Utah, and Wyoming registered steady gains in school population.

"We're not going to see anything of the size or scale of the baby boom" when enrollments were jumping nearly 3 percent per year, said John Long, chief of the population projection unit for the Census Bureau.

The number of births began a steady rise in 1978, the bureau reported. The 5 to 17 age group will number 44.3 million in 1985, Long said, but will increase gradually to about 52.3 million in 2000, about the same as the peak year of 1969.

Because of the 1978 turnaround in births, the elementary schools nationwide will begin feeling the impact in the mid-1980s.

"Next to the maternity wards, the elementary schools feel it first," said Martin Frankel, an enrollment analyst with NCES.

Between 1985 and 1990, the Census Bureau and NCES project about a 12 percent boost in the enrollment of grades 1-8. From 27 million students in 1985, NCES said enrollment will rise to about 30.3 million in 1990.

Future Demographic Trends

Projecting enrollment after 1990 is more in the realm of guesswork, since these children are not born yet. But the big demographic bulge of married women of child-bearing age plus the solid indications that more women are having their children later in life strongly suggest a growing number of young children throughout the decade.

Consider some of the key concepts used by

demographers. They often mention at least three indicators: the number of live births in a year, the number of children a women expects to have during her lifetime, and the actual number of children she's had by, for example, age 30. The "underlying birth rate" is not going up. Women, on the average, are expecting to, and are having about 1.8 children, not enough to replace the current population. However, the extraordinarily large number of women in their 20s and 30s — the baby boom generation of the 1950s and 1960s — accounts for an increase in the number of births per year, even though the fertility rate is not increasing. This is the so-called "baby boom echo."

Demographer Peter Morrison of the RAND Corp. in Santa Monica, Calif., reminds educators that the birth rate is unpredictable and the experts have been wrong before. For example, between 1963 and 1974, the birth rate fell from around 23 per thousand per year to less than 15 per thousand in 1974.

"The sharp decline caught everyone by surprise and reminded us that our powers of prescience are no greater today than they were after World War II, when the baby boom caught the profession off guard."

It was clear at some point there would be an "echo" effect of the baby boom, but it surprised even the demographers. In 1975, there were 5.7 million women aged 40 to 44, who were essentially through having children, and 10 million girls 10 to 14, who would soon start having children. But the trend has been for women to have children later, perhaps in their early 30s rather than their early 20s, so the turnaround in elementary enrollment has been delayed.

What should administrators keep in mind when looking to the future? Morrison said the birth rate is clearly and quickly affected by cultural and economic changes. In times of economic uncertainty, couples choose to have fewer children, or at least to delay them for a while longer. In times of economic prosperity and stability, such as the 1950s, families tend to have more children.

Further, "fertility decisions have become more rationalized." With better birth control methods and changing values among women, prospective mothers are deciding to have fewer children, later in life. And the recent uncertainties in the economy have probably persuaded some couples to either delay an extra child or to scale back family plans.

The U.S. Department of Agriculture estimated that a child born in 1982 would cost a family $134,000 to raise. That number alone could lead to a lower birth rate.

Morrison also concluded, interestingly, that "the desired size of a family (for those who have one) will converge on the two-child family as a national mode. Couples wanting large families of four or more children will become rare."

Elementary Projections

So, what are demographers guessing for the elementary enrollment after 1990? Harriet Fishlow, formerly of the University of California, Berkeley, basing her projections on Census Bureau figures, estimated that elementary schools will experience another 6 percent increase in enrollment between 1990 and 1995, added to the 12 percent gain between 1985 and 1990.

After 1995? Another elementary decline is expected to set in and to continue for at least another decade.

Secondary Projections

At the high school level, the projections are largely reversed. The secondary schools were little affected by the big declines of the 1970s, but in the 1980s they must grapple with the problems of declining enrollment.

The high school enrollment peaked in the years between 1975 and 1978, when it stood at about 15.6 million. But the decline has begun, and the number of students will plummet throughout the 1980s. By 1990, enrollment will be down to 12.4 million. The total drop in high school enrollment will be nearly 25 percent, and is certain because those young people are already born.

After 1990, high school enrollments will start back up and should rise about 19 percent by 1995, according to Census Bureau projections.

This sharp fluctuation may cause a considerable problem for many districts. The steep decline will mean a loss of teaching positions, and even the necessity to close some high schools. But the decline will be followed by an enrollment rise that will be nearly as steep as the decline, forcing schools to quickly find more secondary teachers and, in some cases, to build new high schools.

Regional Differences

Unless yours is the mythical "average" American community, you need to be concerned about migration patterns as well as birth rates. The

trend over the last decade is well known: away from the North and Great Lakes region toward the South and West. During the 1970s, almost one-half the entire U.S. population increase occurred in three states: California, Florida, and Texas. The biggest losers in percentage terms were New York, Pennsylvania, and Rhode Island.

Will the trends of the 1970s continue through the 1980s?

The Census Bureau says basically "yes." The bureau did a survey in July 1981, just 15 months after the full census, and found 90 percent of the nation's growth in the period was in the South and West. The annual growth rate in the South was running at 1.7 percent — about the same as during all of the 1970s — and the West was growing at 1.8 percent, down a bit from its 2.1 percent growth in the 1970s. The fastest growing states in the early 1980s are Florida, Nevada, Texas, Utah, and Wyoming.

The Northeast showed some signs of turning around. New England registered an annual gain of nearly 1 percent. But the North Central states have fallen from static growth to a loss. In the first year of the 1980s, Indiana, Iowa, Michigan, Ohio, and South Dakota are estimated to have lost population.

Joel Sherman, associate director of the school finance project at the National Institute of Education, has completed some of the most detailed enrollment projections by region and by state.

"While over 40 states will show an increase in the school-age population between 1985 and 2000," Sherman said, "the rate of growth will again show significant variation. On the low growth side are states like Michigan and Massachusetts, where school age populations will increase by 1 or 2 percent; on the upper end are Nevada, Utah, and Wyoming, where increases will be on the order of 60 to 90 percent."

What's Ahead for School Planners

Both the fluctuations in enrollment envisioned for the next decade and the continuing migration across the nation will test the ability of school planners.

It is not a simple matter to use national, regional, or state numbers as a basis for planning in a school district, and many administrators admit to a less-than-scientific approach to enrollment planning. When asked on the AASA survey for this report, "What process do you use for making enrollment projections?" quite a few administrators responded, "By the seat of my pants."

Other Methods

Most states compile enrollment data by age or grade level in school, broken down by county.

Change in School-Age Population by State: 1960-2000

Decline/Stable 1960s, 1970s; Growth 1985-2000	Growth 1960s, Decline 1970s; Stable/Decline 1985-2000	Growth 1960s, Stable/Decline 1970s; Growth 1985-2000		Growth 1960s, 1970s; Growth 1985-2000
Iowa	Connecticut	Alabama	Montana	Alaska
Mississippi	Delaware	Arkansas	Nebraska	Arizona
North Dakota	District of Columbia	California	New Mexico	Florida
South Dakota	Illinois	Colorado	North Carolina	Idaho
West Virginia	Maryland	Georgia	Oklahoma	Nevada
	Massachusetts	Hawaii	Oregon	New Hampshire
	Michigan	Indiana	Rhode Island	Texas
	New Jersey	Kansas	South Carolina	Utah
	New York	Kentucky	Tennessee	Wyoming
	Ohio	Louisiana	Vermont	
	Pennsylvania	Maine	Virginia	
		Minnesota	Washington	
		Missouri	Wisconsin	

Source: Joel Sherman, National Institute of Education

Enrollment in Grades K-12, Fall 1960 to Fall 1990

Fall of Year	Total	Pre-primary	Grades 1 to 8	Grades 9 to 12
		Number in Thousands		
1960	46,574	[1]2,736	30,360	9,689
1961	48,091	[1]2,879	30,696	10,469
1962	49,997	[1]3,030	31,251	11,312
1963	52,082	3,168	31,965	12,183
1964	53,876	3,301	32,604	12,691
1965	55,498	3,577	32,990	13,010
1966	56,861	3,803	33,374	13,294
1967	58,181	4,026	33,593	13,650
1968	59,621	4,084	33,906	14,118
1969	60,478	4,136	34,015	14,322
1970	61,380	4,279	33,877	14,643
1971	61,863	4,330	33,468	15,116
1972	61,650	4,417	32,085	15,213
1973	61,531	4,399	32,153	15,377
1974	62,014	4,858	31,500	15,432
1975	62,813	5,141	30,883	15,604
1976	62,226	4,996	30,565	15,653
1977	51,665	4,806	29,990	15,583
1978	60,673	4,813	29,025	15,576
1979	60,106	4,895	28,547	15,094
1980	60,176	5,162	28,247	14,670
		Projected		
1981	59,747	5,205	27,867	14,233
1982	59,388	5,372	27,613	13,783
1983	59,022	5,584	27,383	13,542
1984	58,877	5,859	27,133	13,534
1985	58,931	6,127	27,015	13,615
1986	59,365	6,379	27,369	13,497
1987	59,883	6,585	27,988	13,217
1988	60,275	6,683	28,658	12,836
1989	60,907	6,772	29,438	12,558
1990	61,699	6,877	30,298	12,423

[1] Estimated.

Source: U.S. Department of Education, National Center for Education Statistics.

The state or perhaps a county coordinator should also have available year-by-year figures on live births. Some states also project live births for several years into the future.

In large counties, enrollment projections may be only a broad indicator of a trend for a specific school district. A more useful approach would be to construct a "cohort survival" chart for the district.

Edward P. Caffarella, an associate professor of education at the University of Maine at Orono, described such an approach in the December 1981 issue of *Executive Educator* magazine.

"The technique is based on the assumption that what has happened in the past will continue to happen in the future. This is a valid assumption, I believe, because most sociological changes and population shifts in specific communities tend to take place gradually over a period of time," Caffarella wrote. Naturally, if a military base opens or closes in your community, forget the projection. But, otherwise, the numbers should forecast your enrollment accurately for 5 to 10 years ahead.

The first step is to get accurate and comparable data on grade-by-grade enrollments (the numbers should be compiled the same way each year to ensure accuracy) and also obtain the number of live births in the community for the past 16 years. By putting these numbers onto a grade chart, you can calculate the "survival factors," Caffarella said. He explained: For every 100 children born in your community in 1970, for example, figure out how many started school in 1976. Of those, how many were in sixth grade in 1982? These percentages, he added, should stay relatively constant over the years. Therefore, if 120 children were born in your district in 1982, you can project your enrollments with reasonable accuracy between now and the year 2000 when these babies, or at least a predictable percentage of them, will become high school graduates.

Changes in Types of Students

Beyond just the number of students, the types of students and their family backgrounds are changing as well. In just eight years, from 1972 to 1980, the number of Hispanic students in American schools jumped from 3.2 million to 4.2 million — and this at a time when the overall enrollment was stable. The 1980 census found that 1 in 10 Americans spoke a language other than English at home, and of these, about one-half spoke Spanish. The recent census also found more than one-half million children who reported their ability to speak English was "not well" or "not at all."

The Hispanic population has a substantially higher fertility rate than Anglos, and in-migration continues in California, Texas, and the Southwest, where the Hispanic population is highest.

What About Single-Parent Homes?

The soaring number of school children coming from one-parent homes and experiencing the

trauma of divorce has been much discussed in recent years. The problem is clearly a national one.

In the years ahead, however, school officials will be confronted more with this issue. The percentage of divorces and the percentage of working women continue to increase, suggesting that schools should consider expanding their hours and the scope of their programs. Such a suggestion runs up against several obvious roadblocks. Among them: Who will pay the extra cost? Still, planning ahead means taking a look at the needs of the community being served, and the statistics on divorce and single-parent families indicate a need that must be met.

Planning for Declining Enrollment

Planning for declining enrollment requires the same considerations as planning generally. That is, needs must be established, goals set, and options identified. A planning team, which includes representatives of all constituencies, should be formed early in the planning effort, not when the plan is already set. The planning group, moreover, must know that its role is advisory and that only the school board can make and change policy.

District administrators can apply the experience they have gained with decline at the elementary level to cope with decreases in secondary students. For the 73 percent of K-12 districts nationwide with only one high school, however, the need to plan is especially critical. Not only is the education program at stake but so, in many cases, is the community's sense of well-being.

Looking on the bright side. A consensus seems to be developing about the need to refocus the high school curriculum. Local planners should be able to capitalize on the findings and recommendations of the numerous national advisory groups now studying high schools to decide how best to prepare students for the 21st century. Declining enrollment may be seen as less of a threat by community members if at the same time a district is deciding how to cope with decreased numbers of students it can formulate plans for upgrading the curriculum.

Census Data Near at Hand Through State Centers

You don't have to ask Washington for census statistics any more.

Now the numbers that help America's businesses, governments, and schools run better are available closer to home: in the state capital or perhaps even in the neighborhood public library.

In cooperation with state governments, the Commerce Department's Bureau of the Census has developed 49 State Data Centers that offer facts and figures from the bureau, other federal agencies, and state sources.

The concept is a simple one.

Under a voluntary, cooperative agreement between the bureau and each state government, each State Data Center receives free copies of each census publication, microfiche, map, and summary computer tape produced for that state.

In exchange for receiving these data products, each state sets up a depository for the materials, usually in an existing branch of the state government, a state university, or library.

Many of the State Data Centers sponsor workshops explaining how to find the numbers people need from what often — at first glance — resembles a maze of census reports, microfiche, maps, and computer printouts. The centers receive assistance from the bureau's Data User Services Division, 12 regional offices, and field information services specialists who also conduct data user workshops around the nation.

Some State Data Centers prepare "community profiles" of their counties and cities by merging various federal and state government statistics on their computers and then printing out comprehensive reports. The profiles then are offered to the public, usually at a nominal fee or at no cost. Most centers publish newsletters to inform residents about new census data products.

A list of the active State Data Centers is available from the Bureau of the Census, U.S. Department of Commerce, Washington, D.C. 20230.

Sharing Services

Numerous districts encountering decreased secondary enrollments said in response to the questionnaire for this report that they planned to initiate or expand shared services with other districts. In some cases, the sharing is done through a consortium of school systems, in other cases through a more formal educational service agency.

Some districts indicated they have already considerably altered the educational program by making changes within the district. They have revised the grade structure and reduced the number of electives and extracurricular activities.

Now these districts are at the point where they must try other strategies in order to maintain a viable educational program. Frequently, these strategies require working with other districts or community organizations.

This trend is expected to continue. "During the 1980s, more programs will pool, barter, and share resources through the various educational services in a community. Public schools, community colleges, art museums, industries, hospitals, and military bases all have educational programs," said Harold L. Hodgkinson, president of the National Training Lab Institute, Arlington, Va. "In the 1980s," he continued, "we will learn about other educational resources in our communities, who runs them, and how we might trade and combine these resources for the good of all the citizens in that community."

Currently, sharing services with other districts is most common. To illustrate: The School District of Whitefish Bay, Wis., identified in its planning report many areas for sharing services and programs with a neighboring district, including: consolidation of data processing systems, a common teacher recruitment procedure, common staff development program, common school calendar, one school orchestra program, joint summer school program, sharing of a coordinator for cable television and other audiovisual programs, sharing of a career education coordinator, and consolidation of some recreation and adult education programs.

What kinds of problems do you encounter when you share services? An answer is provided in *Planning for Declining Enrollment in Single High School Districts,* developed by the Educational Facilities Laboratories, New York City, under contract with the National Institute of Education.

Sharing arrangements require mutual trust and good will, the booklet advises, whether the programs are jointly developed by several districts or developed by one district or an educational service agency and offered to other districts. Much anxiety about sharing with other districts or institutions is caused, the booklet says, by a combination of mistrust or ignorance of others and local pride. "People in school districts are not only proud of their accomplishments; they tend to think they can do things better than their neighbors."

To counter such feelings, the booklet suggests two strategies: Plan to increase the knowledge people have of each other, emphasizing awareness of similarities and downplaying what may be traditional rivalries; and consider working through a consortium of districts or an intermediate agency if there are strong feelings of separateness in a district.

Here are some additional strategies to keep in mind that can increase the chances of success:

- Jointly plan and develop shared programs.
- Make participation voluntary. A district should be able to withdraw from the whole effort or a part of it, by giving adequate notice of its intent.
- Share the cost equitably (e.g., based on pupil enrollment).
- Provide for joint evaluation of the programs.
- Start slowly.
- Work out details ahead of actual sharing of services.
- Develop written agreements.
- Start small or with enrichment programs that don't compete with existing programs.
- Plan to revise agreements based on experience.
- Keep in mind that volunteer programs will require extensive promotion to attract students, particularly if the students have to move between schools.
- Plan to provide transportation if the programs offered in other schools are considered part of your course offerings.

Staffing Needs

In districts with declining enrollment, a prime concern is retraining or hiring staff members with multiple competencies. Experts advise that attaining multiple competencies in a staff takes time and planning.

A plan should be developed cooperatively with faculty members. Their strengths and weaknesses should be taken into consideration, and they should be given adequate time and notice of areas

Outlook for New Buildings, Renovation

If you're fortunate enough to be adding a new building to your district in the near future, you may settle on a "basic" building — one that includes a library, gymnasium, and music rooms, but not much else. That is the prediction of Paul Abramson, president of an educational consulting firm in Larchmont, N.Y.

If, on the other hand, you cannot find the money to repair or renovate current facilities, you've got plenty of company, according to a recent AASA study.

Abramson noted these additional new building trends in the April 1982 issue of *American School and University*:

- Out of favor are the "finger plans" of the 1950s and 1960s and the one-story buildings of the same era. The reason: They eat up energy and land.
- Traditional eggcrate classrooms with double-loaded corridors and individual rooms are favored over open-space, irregularly shaped buildings.
- Carpeting and air conditioning continued to show up in most school projects in the early 1980s, but they are used with more discretion.

Renovation Needs

Nationwide, school buildings are in "urgent" need of repair, according to a recent study conducted by AASA, the Council of Great City Schools, and the National School Boards Association.

The study, based on a survey of 100 districts of various sizes, found that districts budget only 6.7 percent to maintenance and capital improvement, down from 8.6 percent in 1970 and 9.6 percent in 1960. The amount spent on construction of new school buildings was even lower — an average 1.4 percent a year between 1970 and 1980, the report found.

Seventy-one percent of the districts said they should give immediate attention to roof repair and replacement. They also identified 12 other areas where immediate attention and repair are needed: heating, ventilating, and air conditioning repair and replacement; interior modernization; window replacement; electrical systems; boiler repair and replacement; painting; paving; handicapped access; asbestos removal; insulating; plumbing; and floor repairs.

AASA pointed out that districts should also be considering retrofitting for energy conservation and adapting buildings for new technology with wiring for cable television and outlets for microcomputers.

in which they should seek new or refresher training.

Planning for Declining Enrollment in Single High School Districts also recommends that districts provide refresher training to teachers who are certified in a specific field (science, for example) but who are expected to teach additional courses within that field.

Teachers will require additional training if the district decides to offer more tutorial or small seminar work, independent study, or large lecture courses. If community members (e.g., artists) are brought into the schools as resource people, teachers should be trained in how best to use their services.

Finally, the booklet advises, when districts choose to share teachers for low-enrollment courses, the simplest way to handle the administrative portion is for one district to have a contract with the teachers and for the other participating districts to reimburse a proportion of the total cost. Thus, the conditions of employment (pay scale, fringe benefits, and working conditions) would be those of the "host" district.

Closing Schools

Districts anticipating the need to close schools should develop, well before a closure is imminent, a planning process and a series of guidelines to narrow the choice of schools.

The Board of Education of the Minneapolis Public Schools, for example, said in the district's long-range plan that decisions on facilities should be based on these principles:

- Efficient use (matching enrollment projections for the five-year period to building capacities).
- Equity in educational opportunity (assuring

that similar program choices would be available to all parents and students and that busing and assignment of majority and minority students would be fair).

- Excellence in the educational program.
- Stability (grade organizations and program offerings would be assigned to buildings for the five-year period, with additional offerings made available as needed).
- Predictability (establishing and maintaining school attendance areas for the five-year period so that parents and students could plan for the future).

Also worthy of note in the plan are two provisions to assure equitable treatment for all students: (1) that every grade in every elementary school would have at least two classes, allowing alternative matching for student-teaching compatibility and teaming of teachers; and (2) that high schools would provide students with a full variety of courses to accommodate those going to college, vocational/technical education, or entry-level employment.

Additional resource: *Declining Enrollment — Closing Schools: Problems and Solutions,* an AASA Critical Issues Report, is a comprehensive guide to dealing with all aspects of declining enrollment. It offers tips on: what to do with excess school space, reduction in force, curriculum and grade structure, public relations and communications, and board policy. A chapter devoted to declining enrollment at the high school level includes this advice: "Show twice the patience; develop twice the intensity of public participation." (See ordering information at the end of this report.)

Chapter III

Politics/Finance

The key number in the politics of education is this: Fewer than one in four households has a child in the public schools. In the early 1960s, about 60 percent of American households had a school-age child, and, not surprisingly, the schools fared far better in seeking financial support.

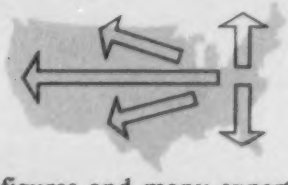
All this can lead to some alarming predictions for the future. For example, at the 1982 AASA convention, Albert Shanker, president of the American Federation of Teachers (AFT), said public education will be engaged in a life-and-death struggle over the next few years — because of a possible tuition tax credit and a resulting growth in private schools; because of a stagnant economy yielding little for public services; because of the huge sum needed to pay for American imports, especially oil; because of the high cost of the current defense buildup; and, finally, because of the aging of the American population.

Without delving further into the problems facing public education, it's safe to say Shanker and others talking about the politics of education in the next decade have at least one common theme: School officials can't sit back and wait for the money to roll in. They must be more political in the broadest sense of the term — aware of and responding to public concerns.

Shanker, known for his political acumen, has two basic suggestions: Educators must become better organized politically, and they must work together to improve the quality and image of the public schools.

"If you have a majority, you don't have to be organized," Shanker said. "We have to make 20 percent look like 50 or 60 percent." To compete with the many other vociferous and well organized groups making demands on Congress, "we have to become a single issue group," he recommended.

Focus Shifts to States



Both the dollar figures and many experts say the real battle may be in the state capitals. In 1979, for the first time in American history, more school revenue came from the state than from local sources. In that year, 46 percent of public school money came from states, 45 percent from local sources, and just less than 10 percent from the federal government. And the federal share has been declining since.

The many separate school finance decisions tended to cap the use of local property taxes for school support for the obvious reasons that the huge disparities in property wealth created inequality — which was the reason for the suits in the first place.

Nationwide, from 1960 to 1979, the percentage of school money that came from local sources fell from 57 percent to 45 percent, according to the National Center for Education Statistics. Meanwhile, the state share jumped from 39 percent to 46 percent.

While the key source of growth is at the state level, the financial picture in state capitals is not rosy, at least for the first years of this decade.

E. Kathleen Adams, an economist at the Education Commission of the States (ECS) in Denver, noted that from 1975 to 1981, federal and state revenues for education grew at more than 11 percent per year. But from 1981 to 1982, federal aid in total dropped 3 percent, and state aid grew

at only half its normal rate — about 6 percent.

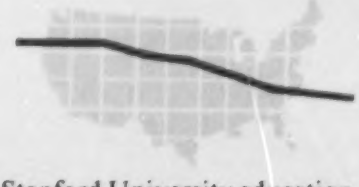
Since 1977, 16 states have reduced their sales taxes, and 22 states have reduced their income taxes, Adams wrote in the *Phi Delta Kappan.* Adjusted for inflation, state revenues declined by 2.7 percent in 1981, and the picture is not likely to improve soon in most areas.

"Although the majority of states have experienced little or no real growth in revenues, a handful of energy-rich states have enjoyed significant growth in total tax revenues. These include such states as Alaska, Montana, New Mexico, Texas, and Wyoming," Adams said. But these are clearly the exception. For most states, revenues for all services, including education, will be badly squeezed, at least until the recession subsides and the economy turns upward.

The switch from local property tax receipts to general state revenue — usually based on an income tax — appeared during the 1970s to bode well for education. But even that move has turned sour of late because state revenues are more volatile during economic cycles than are property taxes.

School administrators are also pessimistic about the immediate future. Asked, in a questionnaire for this report whether state financing will go up or down in the next few years, most said it will decrease.

Low/No Cost Strategy for Schools



Michael Kirst, a Stanford University education professor and former president of the California State Board of Education, urges local school officials to concentrate on Albert Shanker's second point in his AASA speech — improving the quality and image of public education.

In a speech at the 1982 annual meeting of ECS, Kirst outlined a strategy for "improving schools in an era of fiscal constraint." It is both an educational strategy and a political one.

"Most lasting changes in the recent past have tended to be 'costly reform by addition.' We have added functions, additional layers of things that schools should do or be," Kirst told the ECS meeting. "A single example will show that the period of reform by addition has played itself out. If the pace at which we increased instructional personnel over the past 20 years had kept up, we would be down to a national average of 12 pupils for every instructional person — not counting aides — by the year 2000."

In the 1980s, improvements must be "low-cost or no cost." Further, the Stanford professor advised, school administrators should seek durable reforms. As an example, he cited the introduction of Carnegie units of instruction for admission to college — a reform that had an enormous and durable impact on education, but, in essence, was a low-cost reform.

Former *New York Times* education editor Fred Hechinger advocated much the same view in his "Educational Agenda for the 1980s," published by *Phi Delta Kappa.*

Hechinger concluded: "Ultimately, the years ahead require two basic ingredients if there is to be a renaissance in public education: confidence and trust. The focus must be on how to rebuild trust in education, both for its own sake and as a model of rebuilding trust in American institutions. The schools must earn such trust. And they must earn it by showing that even in a period of retrenchment, quality can triumph."

What is quality education, and how do you get there with reasonable expenditures?

Kirst suggested four key variables to look at:

- Instructional time.
- Curriculum content.
- Materials and technology.
- Quality of the teaching force.

Time

As Kirst noted, this is "the one great finding of educational research that you don't have to go to Harvard or Stanford to find out. Children tend to learn what they spend time on in school during engaged learning sessions, simplified as 'time on task.' On the average, students who have four years of English have better English scores than students who have two years of English."

Yet, the recent trend on following the "time on task" truism has not been very good. In 1977, when the College Board panel under Willard Wirtz investigated the long decline in Scholastic Aptitude Test scores, the conclusion it arrived at was neither mysterious nor surprising. In essence, the panel said high school students in the 1970s were not spending as much time as those in earlier years in academic learning. They were taking more electives — some of which may have been worthwhile, but not useful for the SAT, and

some of which were watered-down courses. "Detective fiction" had replaced English literature. The panel also found a drop in assigned homework, which can and should be an extension of learning time.

A recent report from the National Assessment of Educational Progress found that two-thirds of American students, by their own admission, spend either "less than one hour" or "no time" each day on homework.

Curriculum Content

The principle here is as apparent as the "time on task" idea. Chances are, only students who study physics or German will learn physics or German, the few Einsteins excepted.

Fred Hargadon, dean of admissions at Stanford University, often complains about the high school transcripts he sees showing students have graduated from top-notch high schools while managing to steer away from the presumed core of academic courses. For example, a young woman applied to Stanford with nearly all A's from one of the best high schools in California. However, her courses consisted of two dance courses, "cooking from scratch," "student leadership," and the like. She wanted to be a doctor, but she will have to get her college education elsewhere. Hargadon rejected her application.

School administrators can monitor time on task and the content of learning time, and they can make improvements without spending a lot of money, Kirst said.

Teaching Materials

A sample of national textbook publishers, in a *Los Angeles Times* interview, recently agreed that the reading levels in their textbooks had dropped two full grade levels in the past 10 to 15 years. And Harvard University Prof. Jeanne Chall has correlated this drop in reading challenge directly with the decline in test scores nationwide. Again, the same principle applies: Students who are not exposed to the academic content — a broader vocabulary, for example — will not learn it.

Take a look at workbooks, too. NAEP has consistently found that students are faring poorly in "critical thinking skills" and "problem solving skills" and in writing thoughtful essays. Yet, a University of Illinois study found that 50 percent of the workbooks used only required students to fill in blanks, not write a sensible summary or solve a problem.

The textbook problem is not one that individual administrators can easily solve, although they can exercise greater scrutiny over the quality and challenge of texts and workbooks they purchase. For example, there's general agreement that the "problem-solving skills" of most mathematics students are poor, in part because of recent emphasis on basic skills at the minimal level. Adminstrators can ensure that any new mathematics texts or workbooks emphasize problem solving, not just drill and filling in answers for calculations.

However, as a strategy for the 1980s, "we need a widespread movement in a number of states and school districts . . . to upgrade the quality of textbooks and materials," Kirst told the ECS gathering. "The textbook publishers do respond to the market. But only when educators, parents, and the legally authorized bodies ask for challenging content will publishers do their part. As long as we have told publishers to lower the reading level and make texts easier, they have done it. When we ask them to upgrade the texts, they will comply with those requests, too."

Building Confidence

In response to the AASA questionnaire for this report, many school administrators reported that their plans to solve major problems in their districts (e.g., decreased public confidence, dwindling dollars) included a multitude of communications/public relations strategies.

Here are some of the strategies they cited:

- Encouraging more public participation in planning and decision making.
- Hiring a full-time communications executive.
- Using cable television to bring school board meetings and school activities into homes.
- Working with local service organizations, businesses, industries, the Chamber of Commerce, community agencies, town or city government, and local colleges in cooperative educational or civic activities.

Additional ideas come from *Building Confidence in Our Schools*, an AASA publication written by Gary Marx, associate executive director of AASA. (Copies are available from AASA, 1801 N. Moore St., Arlington, Va. 22209; 15-49 copies, $1 each. Minimum order 15; postage free if prepaid.)

Marx outlines 12 strategies that administrators can use to build confidence in their schools:

1. Strive for quality. Each day, Marx says, "we should ask ourselves how we could make our

schools even more effective."

2. Create a spirit of caring. "As educators, it is our business to care; sometimes, we simply need to show it a bit more."

3. Share the good news about schools. On a regular basis, brainstorm the answers to questions such as: What's happening here that people need to know about? What are the challenges we face and how are we dealing with them? Then, "share the wealth" through newsletters, talks with parents and other citizens, good news notes, speeches, community meetings, planned phone calls, and other channels.

4. Show connections . . . "between high quality education and . . . a viable defense . . . a sound economy . . . and the hopes and dreams we have for ourselves and for our nation."

5. Work with each other, not against each other. "Strive for a team relationship; keep in mind that when we as educators criticize each other, the public believes both of us."

6. Get the community on the school team. Senior citizens, business people, and other individuals and groups need the schools as much as the schools need them.

7. Help people more; hassle people less. "Being an educator can be stressful . . . Therefore, it makes good sense for us to manage the stress in a way that will allow us to be open and helpful in our school relationships."

8. Demonstrate a sense of direction. "Be clear about the missions and goals of the school system and clarify for parents what will be expected of their youngsters."

9. Be an educational leader in the community. "Help parents and other citizens develop a good understanding of issues affecting the schools."

10. Create substantive themes. Create a short consensus statement that can serve as a rallying cry for staff and community (e.g., "Getting Better for Kids").

11. Be an effective communicator. "Basic to effective communication is openness and honesty. The facts, whatever they are, are seldom as damaging as misinformation or misunderstanding."

12. Have confidence in yourself. "Educators have a choice: to allow our spirits to be crushed by challenges of the job or to forcefully and enthusiastically deal with them. With courage, commitment, and a positive attitude, we can become fountains of confidence in our communities," Marx concludes.

Working with Business/Industry

Recently, school districts have engaged in numerous collaborative efforts such as "adopt-a-school" programs and business/education partnerships. The adopting corporations in these programs often read like a who's who of business: Sears, Ford, Levi Strauss, General Motors, J.C. Penney, Burger King, Bank of America.

Everyone benefits from successful business/school partnerships, according to *Partners for the 80s: Business and Education* published by the National School Volunteer Program (300 N. Washington St., Alexandria, Va. 22314). It says schools benefit from the additional financial assistance and expertise offered by business and community resources; businesses gain a better understanding of education and increased prestige in the community; the community benefits from a healthy educational environment and a better prepared labor force; and students profit from more varied programs.

To be successful, the booklet advises, the partnership must be built on mutual trust and respect. "Too often, corporations are perceived as a font of monetary resources rather than a source of educational talent, while education is looked upon as being interested only in monetary resources."

Other elements in successful partnerships, according to the booklet, include:

- Commitment from top management in businesses and the schools.
- A clearly written district policy stating objectives, measures for evaluation, and standards for performance.
- Publicity for the program by both schools and businesses.
- Inclusion of community organizations in the partnership.

Cautions: Some school boards are reluctant to accept financial assistance from large corporations because they fear they will compromise their autonomy. And some critics caution that business may try to unduly influence curriculum and evaluation decisions.

For these reasons, districts should establish clear, specific policies on the acceptance of financial or non-monetary support. Both schools and businesses should understand that the business partner will be viewed as an important part of the school, but that educators will retain authority in the classroom and be responsible for curriculum decisions, discipline, and the attainment of district goals.

Examples

According to one estimate, more than 200 "adopt-a-school" programs now exist. Here are some specific examples of what these and similar programs are doing:

- New York City's "Join-a-School" brings together business and school staffs for cooperative planning. Businesses loan executives to schools, donate equipment, and provide technical assistance.
- As part of the "Boston Compact," school officials committed themselves to upgrading the quality of education in the city schools while business and civic leaders agreed to hire local youths. As one follow-up move, the Bank of New England provided $300,000 for a five-year program of "teacher excellence" awards.
- In Indianapolis, "Partners in Education" was formed in 1979 under the management of the Chamber of Commerce to address the needs of the schools by combining resources. Under the plan, a school and a business form a partnership, renewable yearly, to bring business people into the school to work on projects that staff members feel will be helpful and that business people feel qualified to accomplish (e.g., improving attendance, creating challenges for gifted and talented youngsters). Funding comes from the school district, the Corporate Community Council, the Lilly Endowment, and the Indianapolis Foundation.

Fund Raising

While business/education partnerships are well established practices in many districts nationwide, a newer phenomenon is fund-raising programs.

In a survey of California school districts by the business management firm of Peat, Marwick, Mitchell, and Co., 123 out of 308 responding districts said they either had a fund-raising program in place or were planning a program.

The more successful districts appeared to be those with established not-for-profit foundations to handle the fund-raising task. They raised an average of $61,000; those without foundations raised $7,500. Only six of the districts reported raising more than $100,000 in 1981-82; the majority raised less than $20,000.

Districts experienced in this new type of fund-raising offered tips for the consideration of planners in other districts. They suggested the use of a foundation structure because it can operate separately from the governing structure of the school district. Furthermore, they said, the foundation is a time-tested vehicle for mobilizing community support.

A basic in any successful fund-raising campaign, the business management firm said in its report, is that the district communicate what is needed. The needs may include non-monetary gifts (e.g., computers, musical instruments).

Another theme stressed by experienced districts, the report said, concerns the design of the fund-raising program. Several districts said the program should seek a blend of general support and specific program support (for example, for the science department).

The authors of the report outlined six steps in planning for a fund-raising program:

1. Make an informed decision. Don't embark on a fund-raising program unless you are willing to make a conscious and long-term commitment. The district should have a financial need that would be best addressed by this kind of effort. In addition, it should make sure there are sufficient resources in the community to make a fund-raising program worthwhile.

2. Decide on a strategy. A district may decide to aggressively pursue support from all segments of the community or to limit the undertaking.

3. Set policy. The board should decide whether to establish a foundation to manage the fund raising, how and from whom gifts will be solicited, and how the district will support the effort.

4. Establish goals and objectives. The board must decide, for example, on the amount the district will try to raise.

5. Develop and implement the program. How, specifically, is the program to be run?

6. Monitor the results and make refinements in the program, as required.

Note: Some observers say community foundations for public education soon will be a massive new type of aid; others exhort caution. They note that schools cannot be financed by private donations and that some communities are resource-rich while others are poor. Great inequality could result from keying a local school system's future to the amount of support it could raise from businesses or foundations.

Consequently, fund raising through foundations should not be looked on as a replacement or even basic support for the regular financial base of a district. Instead, such money should be regarded as "risk capital" or seed money for new programs.

Chapter IV

Teachers

The near-term future for teachers is not going to be like the recent past. For the past 10 years, teaching has been beset by a series of declines — for example, decline in the number of jobs and declining respect — both from the public and among teachers themselves.

At five-year intervals, the National Education Association (NEA) asks its members about their willingness to teach again. The percentage who "certainly would" fell from 50 percent in 1961 to 22 percent in 1981. Over the same period, the percentage who "probably would not" or "certainly would not" rose from about 10 percent to 36 percent.

Because of declining enrollments, many districts have been unable to hire newly trained teachers, forcing them to seek employment in other fields. Thus, between 1976 and 1981, the median age for American teachers rose four years, from 33 to 37. The NEA said in 1971 that 9.1 percent of teachers were in their first year. A decade later, only 2.4 percent were beginners.

So, the last decade has been a tough one, with almost all indicators heading downward. But one key indicator — the demand for teachers — will turn around. With enrollments heading upward in the 1980s at the elementary level and at all levels by 1990, teachers will again be in demand. That alone should help restore some respect and interest in the profession.

Some commentators are even predicting a swing from a teacher glut to a general teacher shortage. Throughout most of the last decade, there were far more teaching candidates than jobs available. The National Center for Education Statistics (NCES) estimated a ratio of about 1.5 candidates for every job vacancy. But by 1984, the agency projects, the demand will exceed the supply. For example, in 1986, NCES foresees a need for 177,000 new teachers, with only 156,000 available candidates.

The Real Problem: Quality, Not Quantity

Some observers caution that an across-the-board shortage will not be the problem in the years ahead. Teaching is still an attractive job for many, especially during a time of high unemployment.

The general problem is another one. As Gary Sykes of the National Institute of Education (NIE) put it, "The question is not whether teaching can attract enough people, but whether it can attract and retain capable people. Increasingly it appears that teaching is losing the competition among professional occupations for the best college graduates."

Each year, the College Board asks students taking the Scholastic Aptitude Test about their plans for careers. It also supplies the average SAT scores by the intended field of study.

In 1982, the average SAT verbal score was 426. The math average was 467. Students intending to go into education as teachers or administrators averaged 394 in verbal and 419 in math. About 2.2 percent of the males and 7.4 percent of the females said they intended to go into education.

Comparing verbal scores, students majoring in the arts and humanities had a 436 average. Those in biological sciences had a 434 average. Business and commerce majors — the most popular and fastest growing majors — had a 409 average, below the national average, but still well above education. The physical sciences still seem to get the top scorers. These students averaged 442 in verbal and 524 in math.

Is the prospect worse now than before? Sykes and Stanford University Dean of Education Myron Atkin believe it is.

Why?

Atkin cites several factors besides the obvious — low pay — that have cut down the number of capable young people going into education. The women's movement, for one, has had a major impact — positive for women, but negative for education.

"In an earlier era, women were assumed to be predisposed to social services, to occupations in which they provided direct assistance to needy people on an individual basis," Atkin wrote in *Daedalus*. Today, "young women tend to make occupational choices based on the same values that have influenced young men: competition, power, status, and wealth. The effect on the quality of people drawn to the service-oriented professions, at least in the short-term, seems devastating."

Security was said to be one of education's best drawing cards. However, Atkin noted that job security is probably overrated as a factor for younger people today. "Job security may have been displaced in importance by intellectual stimulation, glamour, and opportunity for advancement," he wrote.

What Can Be Done?

What can be done to help ensure that new teachers are capable persons, well educated and dedicated to teaching?

Sykes argues that U.S. education needs both "screens and magnets" to attract good teachers and to keep out those who are unsuited to the job.

"In the future, our society will require more of teachers than ever before, yet this profession

Finding Qualified Teachers for Math and Science Classes

Whenever national panels such as the National Commission on Excellence in Education gather to discuss the issue of mathematics and science in the nation's schools, they soon focus on one key question: How do we get enough qualified mathematics and science teachers into the classroom?

In a 1981 survey, 44 states said they had either a shortage of mathematics teachers (28 of them) or a "critical shortage" (16). A few months later, in a similar survey, 27 states reported a "critical" shortage of high school physics teachers, and 15 more said they had a shortage. Chemistry, biology, and even general science teachers are in short supply.

The problem has two parts: far fewer college students are choosing to go into mathematics and science teaching, and current teachers of these subjects are being lured away from teaching by higher paying jobs in private industry.

From 1971 to 1980, the number of mathematics teachers graduating from 600 of the nation's top colleges and universities fell 77 percent. The number of new science teachers dropped by 65 percent.

Reports from the states and school districts illustrate the national dilemma. North Carolina reported that only 55 percent of its mathematics teachers were certified to teach mathematics. New York, the nation's second largest state, had only 32 college graduates in 1982 who planned to teach mathematics in the junior or senior high school. New Hampshire had only one such graduate. The Los Angeles school system helped to close the gap by taking teachers from art and physical education classes and retraining them over the summer to teach junior high mathematics.

What can be done? The National Council of Teachers of Mathematics has compiled some of the proposals:

1. Sen. John Glenn (D-Ohio) and Rep. Dave McCurdy (D-Okla.) introduced a "Precollege Mathematics and Science Teacher Assistance Act." The legislation would provide government-backed, low interest loans to college students who agree to

appears decreasingly able to attract, sustain, and hold talented people," Sykes wrote in outlining the problem. "We must devise policies and practices which make teaching more attractive and satisfying."

He is not optimistic about the near future. The number of entering college students is projected to drop off at about the same time increases in elementary enrollments will require the hiring of more new teachers.

"Even more discouraging is the drop in education enrollments," Sykes said. "While undoubtedly a response to the depressed labor market for teachers, this also reflects the declining attractiveness of teaching as a career for young people. The teacher shortages of the future are likely to result for the first time from teaching's dwindling power to draw young people into its ranks. This historically unprecedented development is deeply disturbing and means that we can no longer count on simple demographics to bail out the system."

Others disagree on that point. Given adequate publicity, the teacher shortage will correct itself, they say, because teaching is still an attractive profession for many students.

But the issue of quality remains. "Policy-makers — especially at the state level — have not been shy about addressing these (quality) teacher work force problems," Sykes wrote. As a result, many states have new laws, regulations, and tests for aspiring teachers.

"As teaching seeks to emulate the 'true' professionals and perhaps acquire some prestige by association, testing looks attractive," Sykes noted. Testing, moreover, is doubly attractive for legislators, he added. "It allows the keepers of the public purse to adopt a stern posture without much drawing on those purse strings."

The South has led the charge with its "compe-

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teach mathematics or science for several years in elementary or secondary schools. Moreover, the bill would provide a tax credit to high technology firms that would hire mathematics or science teachers for summer work, a means of supplementing their pay and keeping them up to date with developments in the field. These firms would also be encouraged through another tax credit to permit their employees to spend several hours in the classroom.

2. In Alabama, undergraduates who seek mathematics teaching certification are eligible for loans for tuition, books, room, and board for each year of full-time study. For each year they teach, one year of the scholarship will be forgiven. In addition, teachers with six hours of mathematics are eligible for a permit to teach general mathematics at the seventh- and eighth-grade levels.

3. In Kentucky, undergraduates who seek a mathematics certificate are eligible to receive $2,500 in loans beginning in their sophomore year. A year of this loan will be forgiven for each year of teaching.

4. In Houston, the school district pays a $2,000 annual bonus for teachers in shortage fields such as mathematics.

5. In Oklahoma City, certified mathematics teachers entering the school system are eligible for a $500 bonus. All certified mathematics teachers are also eligible for an extra bonus of $100 per class each year.

6. In Richmond, Va., certified mathematics teachers hired by the district are eligible for a $2,000 bonus — $1,500 in the first year and $500 in the second. But those who leave after the second year must repay a portion of the bonus.

7. In Dallas, the school district has set aside $500,000 for tuition, books, and transportation for teachers who wish to upgrade their skills in mathematics or gain certification to teach it.

8. In Fairfax County, Va., teachers who have been in the system for more than four years may enroll in a local university to obtain certification in mathematics, with the tuition paid by the school district. But the teachers must stay in the district for at least three years or repay part of the tuition.

9. The Philadelphia school district will pay for selected teachers to participate in a three-year program resulting in certification. The district then guarantees jobs teaching mathematics.

tency assessment" movement, popularized by the Southern Regional Education Board. In a way, the South presents the classic case. Its lower pay scales and less than average expenditures on education have increased the region's problems in attracting qualified teachers. The states have responded to this problem by testing to screen out the unqualified.

Although the various screening and "accountability" mechanisms make sense on their own — who would, after all, oppose the idea of teachers being "competent" in basic skills — many experts believe they won't solve the problem. As Sykes noted: They will only screen out the "abjectly deficient."

"The likelihood appears low ... that these policies will substantially improve the quality of new teachers," Sykes said. He foresees a series of implementation problems. How many states, for example, would be willing to try to fire a teacher in his or her third year because of an "unacceptable" rating on a state performance form?

Sykes added, moreover: "If teaching is decreasingly attractive to capable young people, then raising standards and restricting entry misses the point."

What are the magnets? How do you attract more highly qualified teachers?

Despite the popular myth that teachers are not greatly influenced by money, Dan Lortie in his book, *Schoolteacher*, noted that studies by economists have shown teacher mobility, both in and out of the profession and between school districts, is greatly subject to differences in salary. The "opportunity to work with young people" is usually listed first by teachers as their reason for entering the profession. But it is a mistake to think this alone can cause able and ambitious young people to foresake a decent income to become a schoolteacher.

The other often-noted attractions of teaching are reasonable and apparent. Some are not very uplifting. For example, nearly 22 percent of the teachers in a 1981 NEA survey cited the "long summer vacation" as a principal reason for having become a teacher. Incidentally, this figure was up from 14 percent in the 1971 survey.

Further complications abound. Teaching as a career is distinguished by "the lack of advancement opportunities coupled with a scarcity of rewards for excellence and effort," Sykes said. There are virtually no rewards "for persistence and high commitment" to the job, he added. There "are no stages of advancement and few possibilities for progression," he noted.

Men most often seem to surmount this problem by leaving teaching, either to become administrators or to get out of education altogether. Women teachers have been less mobile professionally.

Not only does teaching offer few chances for advancement, but there are few rewards for talent and extra effort. "The dedicated exemplar receives the same salary, vacations, and other benefits as the drone who has retired on the job," Sykes wrote.

If teaching is to attract ambitious and career-oriented young people, school planners must confront the "glaring lack of incentives and advancement opportunities" in the profession.

Possible Solutions

Subsidized study: Sykes cited several possible options for attracting top students to teaching. The federal or state governments might establish scholarship programs, with the student's cost of education subsidized in exchange for a promise to teach for a specified number of years. The military through ROTC operates much the same way, and since the end of the Vietnam War has had little trouble attracting top students to the programs. Military recruiters appeal to a young person's notion of service to the nation. Teaching is perceived in the first instance as service to the community, and recruiters could use just that appeal.

Pay incentives: School planners must again confront the issue of merit pay, differential pay, or added incentives — whatever term is used.

The Houston (Tex.) Independent School District has established a system of bonus pay, up to $2,000 a year, for teachers in its shortage areas — mathematics, science, bilingual education, and special education.

Major universities in dire need of engineering professors have managed to sidestep the pay issue by offering applicants either consulting work outside the university or extra summer teaching. Sykes asked: Couldn't school districts do the same in special cases — offering teachers the possibility of doing outside work, such as writing a grant proposal or doing extra teaching in the summer as a way to raise their salaries?

Los Angeles Supt. Harry Handler has initiated a "master teacher" program, both as a way to recognize outstanding teachers and as a means of supplementing their salaries, if only slightly. In

the first year, the 200 master teachers will get an extra $500 and will be asked to help other teachers in nearby schools. The teachers will be chosen by regional administrators based on the recommendations of their principals.

"Short of merit pay plans, however, school boards could establish regular rewards for outstanding teaching which might involve cash bonuses, award ceremonies, and coverage by the local media," Sykes said. A school committee made up of both teachers and administrators could establish the criteria for the awards, nominate the candidates, and make the final selections. Ideally, the award should include a sizable monetary bonus, signifying the honor and importance attached to it. But even if the bonus were

School Administrators Cite Numerous Staffing Problems

A sample survey of AASA members for this report asked the question: "What difficulties do you anticipate in staffing as you look to the next 1-3 years, 4-6 years, 7-10 years, and 11-20 years?"

The most common answer was a shortage of math, science, special education, and industrial arts teachers. Quite a few respondents saw their district in a bind, first having too many older, certified teachers and then encountering a severe shortage of math and science teachers. Respondents asked: "How do you hire new teachers when facing an overall reduction in force?"

Here are a few of the responses:

- (1-3 years) "An abundance of teachers in some areas and few well qualified teachers in other areas — especially math, science, and industrial arts. (4-6 years) The more able individuals will not enter education as a career. We may receive the less motivated person. This, along with limited finance and the retirement of the dedicated teacher, may trigger a move toward education mediocrity." — Jerry L. Nichols, Superintendent, West Marshall Community School District, State Center, Iowa
- (1-3 years) "Maintaining program integrity. Excusing teachers by seniority rather than certification leaves us with shortages in critical areas or a number of assignments out of certification. (4-6 years) Justifying an average teacher salary — elevated by the seniority requirement of law — in the $40,000 range. (11-20 years) Insufficient teachers in the short areas: math, science, business, and industrial arts." — Richard Olcott, Superintendent, South Orangetown Central District, Blauvelt, N.Y.
- (1-3 years) "Too many teachers employed. As federal funds are reduced, we must reduce staff. (4-6 years) A leveling off. (7-10 years) A need for staff members; we expect a shortage of teachers in certain areas. (11-20 years) We have not projected this far out, but our expectations are that there will be a general shortage of teachers." — Tom Dulin, Superintendent, Winond (Miss.) Municipal Separate District
- (1-3 years) "Lack of staff teachers in certain areas; lack of resources and money. (4-6 years) Teachers not trained to use new technologies. (11-20 years) Training institutions lag behind marketplace need for skills and services in teaching careers." — Kenneth N. Hanson, Superintendent, School District No. 79, Amboy, Minn.
- (1-3 years) "Biggest difficulty is convincing the various publics that reductions are necessary. (4-6 years) Shortages of math, chemistry, physics, and learning disabilities teachers. Aging of teaching staff — no room for younger teachers. (7-10 years) General shortage of teachers." Matthew Winters, Supervisor of Planning, Indianapolis Public Schools
- (1-3 years) "Surpluses of teachers will produce reductions in force. (4-6 years) Shortages will become critical in science, mathematics, and computer science. (7-10 years) Enrollment will continue to decline to the point where some staff will be shared on a regional basis." — James P. Akin, Executive Assistant, Research, Planning and Evaluation, Alexandria (Va.) Public Schools
- (1-20 years) "Insufficient turnover — the staff is aging and there's too little opportunity to bring in new blood." — Joseph Pellegrin, Superintendent, Oshkosh (Wis.) Area Schools

ECS Recommends Ways To Attract Quality Students to Teaching

As first steps toward raising the caliber of teaching candidates, here's what the Education Commission of the States, Denver, recommends to state officials and directors of teacher training programs:

- Establish merit-based scholarship programs to attract the most capable high school graduates into teacher education. In addition, the state could expand the "forgiveness" provisions in existing student loan programs, if graduates agree to teach for at least two years in their state.
- As part of any state scholarship program, the state must insist the teachers college adopt sturdy academic standards and recruit talented minority students.
- Give a higher priority to teacher education programs in distributing state aid. "A first step would be to increase the per-credit-hour formula for teacher education to make it at least equal to . . . the rate in engineering, business, pharmacy, and other professional programs."
- Encourage research and greater links between colleges and schools. "An integrated professional development program" will benefit both the colleges and the schools, while research and expanding the knowledge base "is the strength of every profession" and should not be ignored in education.
- Set aside at least 10 percent of the federal block grant money for use in staff development, with the funds to be allotted both to schools and universities.

small, the symbolic importance would carry weight both among teachers and within the community.

"A program of awards for excellence would serve not only to recognize distinguished teaching, but to draw attention to and celebrate outstanding achievement in education. Even a few modest awards . . . could stand as an assertion of excellence in teaching, a tangible reminder that every school in the nation has its unsung heroes," Sykes noted.

Expense-paid study: What about summer institutes and educational conferences? Conferences and conventions are often the prerogative of administrators rather than teachers, but these, too, can be a tangible reward for a job well done and an incentive for professionalism. An all-expenses paid week or two at the state university during the summer is both a way for English, history, science, or language teachers to update their knowledge and a means of saying that teachers are valued for their special knowledge.

Part-time teaching. Most universities, particularly those suffering from tight budgets, make ample use of part-time teachers. Classes in business, foreign languages, journalism, the arts, and a host of others are taught by part-time faculty, many of whom are working professionally in that field. This approach not only boosts the quality of the instructional program, but usually saves money as well. Although there are many barriers to public schools doing the same — state certification laws and union opposition to name two — school planners may want to consider this idea because it is potentially a means of both raising teaching quality and reducing costs.

Other part-time work for teachers: Especially in shortage fields like mathematics and vocational education, school administrators might want to consider attracting teachers by offering extra pay for extra work, either in industry or education. Local businesses, once aware that the schools desperately need teachers, may be willing to hire a teacher part time during the school year or during the summer. Similarly, school administrators may be able to find extra teaching duties for a prospective candidate either through night programs or at a local community college or university. This kind of arrangement serves several purposes. If the field is mathematics, science, or vocational education, it gives the teacher the opportunity to stay current with developments in industry. It also offers the potential to raise the teacher's salary and reward professionalism.

Aim for Your Target

What the experts on teaching seem to be telling school planners is this: Consider what kind of teachers you want in your school district in the next 20 years — well educated, professional, responsible, dedicated, and career-oriented teachers. Think and plan for what would attract these

persons to teaching and what would maintain their interest and commitment to teaching.

Top school administrators cannot be responsible for hiring and developing every teacher in a school district. But they can be responsible for selecting and monitoring principals to see that they are bringing out the best in their teachers.

Helping Teachers

What methods are available to district planners who are charged with improving morale and performance of on-the-job teachers?

That question is addressed in *Building Morale . . . Motivating Staff: Problems and Solutions,* an AASA Critical Issues Report (see the back of this report for ordering information.)

The three primary methods, according to the report, are:

- **Shared governance,** or giving teachers a part in managing the school district.
- **Inservice education,** which the district supports in policy and with sufficent funding, and which is jointly developed by administrators and teachers.
- **A good evaluation plan.** According to the report, such a plan is firmly positioned in state law, school board policy, and negotiated contracts; it is developed and implemented with the participation of teachers; it is based on research, common sense, and the needs and condition of the district; it is stable, but subject to change with deliberateness; it is dependent on both formal and informal procedures; and it is devoid of negative attitudes and aims. Further, the book notes, a good evaluation program uses more than one approach, it unequivocally helps identify poor teachers, and it requires uniform and informed administration by school principals.

Staff Development

What does education research have to say about upgrading staff through effective staff development programs?

Not as much as school district planners (and researchers themselves) would like, according to Gary A. Griffin, program director of the Research and Development Center for Teacher Education at the University of Texas at Austin. Very few studies of staff development, he said, "can meet conventional research standards of conceptual rigor and methodological precision."

With that caveat, Griffin set forth six guidelines that, he said, should be helpful "in promoting positive change on the part of teachers and other school persons." The guidelines are condensed below:

1. **Make participation part of your program.** This gives participants "a sense of ownership" in staff development activities, broadened expectations, and positive relationships with other educators.

2. **Tailor the program to the particular needs of the staff in a specific school.** Research on school effectiveness demonstrated the fallacy of working, for instance, toward a goal of more frequent "higher order" questions in the classroom. Instead, staff development should be more "situation specific" — that is, matched to the students receiving instruction, the nature of the curriculum under consideration, and the skills, knowledge, and beliefs of the teachers.

3. **Allow for flexibility in the program.** Participants change; so does the school environment. Research on the implementation of innovative education programs suggests that programs must allow for adaptation to local differences. Expectations of being able to implant a program without adaptation are unrealistic.

4. **Involve administrators as well as teachers in staff development programs.** Teachers resent being monitored on the use of practices suggested in staff development programs by principals who have planned, but not participated in the program.

5. **Depend less on outsiders, more on insiders.** Traditional dependence on outsiders is not always efficient. One research study concluded that school change and staff growth were facilitated by having school staff look within the school to find solutions to their problems. [If this approach is overdone, however, it could lead to an insular system with a severe limit on new ideas.]

6. **Don't underestimate the influence of the context of the school upon the program.** A school's history, community expectations, teaching and learning conventions held by staff, students, and parents all help determine the success or failure of a staff development program.

Case Study: New Staff Development Model

"It all goes back to long-range planning — when you set a direction and marshal your resources, you can do something."

The speaker is Harold Overmann, superintendent of the 1,300-student Spirit Lake (Iowa) School District. In an interview for this report,

Overmann reflected on his district's new philosophy about staff development.

Prior to 1981, the superintendent said, "Spirit Lake was going about staff development in the same way too many other districts do — with one- or two-day workshops or bringing someone in for a one-shot deal."

The problem with this approach, Overmann added, is that it does not cause a change in teacher behavior. "If you are going to get improvement, it takes change in behavior. Otherwise, you go back to that classroom maybe feeling better about yourself, but with no change in behavior. So there is very little lasting behavior that results in outcomes for students."

Now, Spirit Lake is involved along with three Minnesota districts (Edina, Minneapolis, and Northfield) and Breck, an independent school located in Minneapolis, in an intensive project to improve teacher and administrative performance with the ultimate goal of improving student learning.

The project is being funded with a $700,000 grant from the Northwest Area Foundation of Minneapolis. It hopes to come up with a model that could be affordable for any district nationwide. The target date for completion is 1985.

The consortium of schools is working with the College of Education of Iowa State University. Richard Manatt and Shirley Stow are codirectors of the project.

Overmann's district initially got involved in the project, he said, because he "just happened to be in the right place at the right time." He explained that his district had been working on program development for about three years when it decided that to continue to make a difference in student learning, it needed a systemized staff development program.

"We were not interested in a one-shot deal; we wanted something that would make a real difference in learner outcomes."

Overmann called Iowa State with just such a request, unaware that the Northwest Area Foundation had contacted Manatt looking for a rural Iowa school to join in its project. Overmann's district met the foundation's stipulations for participation and agreed to budget some funds to the project for staff development activities.

Progress report: Each district was told when it joined the consortium that it could select its own "interventions" or models it wanted to implement. Spirit Lake is using two interventions: a model for clinical supervision and teacher training developed by Madeline Hunter of the University of California, Los Angeles, and TESA (Teacher Expectations and Student Achievement), a project directed by Samuel Kerman of the Los Angeles County office of education.

In the first year, Spirit Lake trained principals in learning theory and in using Hunter's methods of observation and conferencing skills.

In the second year, one-third of the district's teachers were involved on a volunteer basis in intensive staff development. The district will continue the training on a yearly basis, until all teachers have been trained.

As part of the training, teachers must videotape themselves in a classroom teaching situation once a month and then sit down with a colleague to review the tape and relate it to what they are learning in the staff development program.

Principals are required to visit teachers' classrooms and to schedule pre- and post-observation conferences with each teacher for the purpose of improving teacher performance.

One of the advantages of first training the principals and following up with the teachers, Overmann said, is that both then have a common basis for discussion. "The principal knows what teaching skills he is looking for when he observes a teacher, and he and the teacher share a common language and common understanding of what should take place in the classroom."

Some members of the consortium are using the same interventions as Spirit Lake; others have expanded the number of interventions being tried.

The research team at Iowa State will study and keep track of the effectiveness of the interventions in terms of student achievement and of changes in teacher and administrator performance.

The long-term goal of the project, according to its directors, "is to help teachers work smarter, not harder." A major objective, they add, "is to create methods and materials which will allow other school organizations, not in the consortium, to follow the same steps with only a modest amount of outside help and with a limited amount of 'change' funds. A second objective is to make the 'effective' behaviors of teachers and administrators known to colleges and universities charged with the responsibility of preparing teachers and administrators."

New teachers add something to a school that is hard to define — and hard to replace. But many

districts nationwide will be able to hire only a few new teachers during the next 5-10 years.

In addition to hiring, what other means are available to keep the spark of newness alive in a district? Richard F. Frazita, assistant professor of education at New York College at Buffalo, offered six answers to that question in the May 1982 issue of *Educational Leadership*.

To make use of Frazita's suggestions requires some planning, but they are practical, bear no cost, are voluntary for teachers, and do not threaten teachers' job security. Here's what he recommends:

1. **Encourage leave without pay.** Any teacher who takes advantage of a leave, Frazita said, will return to school with a new perspective and freshness that will be good for all concerned.

2. **Encourage cooperative teacher exchanges with other districts at the local, state, or national level.** The teachers involved would come back to their home districts with a different perspective and new experiences to share with staff and students.

3. **Plan an exchange or move for a year's duration by an individual within the district.** The district might use such a program, for example, to shore up a weak math or science program in one school.

4. **Get teachers to volunteer for a substitute program within the district or with other school districts.** Since one teacher would substitute for another, there would be no additional cost to the district. The teachers would benefit by being exposed to different methods, materials, and organizational patterns.

5. **Establish an artist-in-residence program.** A district could recruit "artists" from many sources: volunteers, industry, self-employed individuals, homemakers, graduate students.

6. **Cooperate with business, industry, and public resources.** Teachers could be encouraged to work for a week at a zoo, newspaper office, biology lab, electronics plant, supermarket — the list could go on, depending on local resources.

Revitalizing Staff — The Japanese Way

The quality circle, a team building technique used by Japanese and some American managers, is increasingly being picked up by U.S. business and industry and some school districts.

Basically, the quality circle is a small group of employees and supervisors with similar or interrelated work who meet regularly to identify, analyze, and recommend solutions to problems that affect them.

The members of a quality circle volunteer to participate in the program, although the concept is explained to all employees. Members meet regularly on work time (e.g., one hour meeting per week) to do the following: identify and select problems important enough for concerted attention; identify and analyze the causes of the problems; suggest, evaluate, and select solutions; make the solutions known to the appropriate manager; and receive responses to their recommendations.

What makes the concept work? The Utah State Office of Education pinpointed these characteristics of successful Japanese management:

- Japanese management views people as their most critical resource.
- They invest extraordinary amounts of time in training and mentorship.
- They use group performance reviews or evaluation based on the team's effectiveness.
- Their managers are very visible — often elbow to elbow with labor, sharing the work and utilizing a hands-on personal style of management.
- There is a great deal of emphasis on small-group, large-group, even companywide decision making.
- Workers develop strong loyalty to the company; their jobs become a large part of their lives and culture.
- There are high levels of interpersonal trust among co-workers.
- Managers utilize a great deal of job rotation at all levels.
- Stress is placed upon coordination and cooperation within a company.

Tips: District planners interested in trying out quality circles should keep these points in mind:

- Initiating a group problem-solving process can be counterproductive as a morale building practice unless top administrators are willing to share decision-making power.
- Outside help will probably be needed to initiate the concept; even then staff members will require time to adapt it to local conditions.
- Training will have to be provided for administrators, group leaders, and other staff members as they volunteer to participate.
- The process will require repetition and refinement until the staff feels comfortable in using it.

Chapter V

Curriculum

A look ahead, toward a society that is even more dominated by sophisticated technology, leads to one prime conclusion about education — that is, all children need more of it and at higher levels.

Talk of literacy rates and data on the number of "functionally illiterate" persons masks the important fact that literacy is a changing concept. In colonial times, signing your name was evidence that you were literate.

Being literate in the year 2000 will mean far more than it meant in 1900 or even 1980. Being "minimally competent," as defined by such measures as balancing a checkbook or reading a rental agreement, will not be adequate.

The Need for Reform

There is a surprising consensus about the need for curriculum reform in education, particularly at the high school level. The consensus is this: Schools need to demand a higher level of academic learning.

While some futurists seem agog at the thought of computer technology widely available, others look ahead by looking to the past.

There is no better example than Mortimer Adler, the editor in chief for Encyclopaedia Britannica and the renowned teacher of the Great Books series. Adler recently celebrated his 80th birthday by publishing a new and thorough manifesto for reforming American education — a proposal that combines a vision of the future with a sure sense of the past.

In the *Paideia Proposal* (Macmillan; $2.95 paperback), Adler and the other members of his group of distinguished educators, philosophers, and writers outline a single-track academic program for all students. Adler would insist on general, liberal education for all; he abhors specialized vocational education.

"As compared with narrow, specialized training for particular jobs, general schooling is of the greatest practical value," Adler wrote. "It is good not only because it is calculated to achieve two of the three main objectives at which basic schooling should aim — preparation for citizenship and personal development and continued growth. It is also good practically because it will provide the best preparation for earning a living."

His philosophy is best summed up by a statement of former University of Chicago President Robert Maynard Hutchins: "The best education for the best is the best education for all."

Adler has been saying the same thing for 50 years or so. But these days, he has plenty of followers.

Whither U.S. Education?

The United States is moving toward an "information society" — an economy based more on computers and high technology than on industry or agriculture — and the schools must adapt accordingly, said Roy Forbes, former director of the National Assessment of Educational Progress (NAEP).

In an address to the Education Commission of the States, Forbes took a look at the future of the American economy and what it means for American education.

From 1949 to 1965, Forbes noted, 8,000 types of jobs disappeared from America's labor market, largely due to automation. Yet, that same technological progress resulted in the creation of 6,000 new job types.

Job opportunities tied to education: "In a technically oriented society, unemployment is largely the consequence of a lack of education and skills, rather than a shortage of job opportunities,"

Forbes said. Does the recent near-depression refute that statement? No, the facts suggest otherwise. The nation's unemployment rate topped 10 percent in September 1982 for the first time since the Great Depression, but the *New York Times* took a close look at who was unemployed and found startling disparities by industry. For example, in September, unemployment in the steel and heavy metals industry — an older industry beset by foreign competition — stood at nearly 25 percent. Yet the communications industry — where high technology was radically changing the way nearly everything was done — had an unemployment rate of only 2.9 percent. So, the skills and abilities of the information society appear to be the best insurance against unemployment — for an individual or a society.

"Nurtured by the fruits of technology, our country is entering an innovative phase of industrial and human productivity," Forbes said. "The age of rapid information transmission may impact industrial concepts and practices with as much force as they initially had on the agricultural economy." That same notion was popularized by Alvin Toffler in his book, *The Third Wave*.

"It is estimated that more than two-thirds of the nation's workers now collect, process, or store data," Forbes said, and that number will only increase in the next 10 to 20 years. The "potential for future applications (of high technology) lies beyond the imaginative abilities. Automation is already exhibiting its effects on numerous goods-producing industries. Routine jobs that require fewer skills can be performed more competently by machines," he said, citing a Carnegie-Mellon University study that estimated current robots and new ones not yet conceived could perform about seven million existing factory jobs.

As current occupations become obsolete, workers will be forced either to retire early or learn new skills. Corporations will take some of the responsibility for retraining employees to keep up with advances in technology, but they will not hire and train new workers who lack the necessary educational background. That is, and will remain, the responsibility of the education system and of the workers themselves.

Where We've Been

In recent years, the reports from NAEP have had a depressing theme, not the standard notion that kids aren't as smart as they were in olden days, but rather that the gap between basic skills and higher order skills is growing. That is, the basic skills movement may be succeeding in accomplishing its main goal while failing to help students prepare for the future. Forbes has said on several occasions that NAEP reports have a dual conclusion: Students may be doing slightly better on the basics — for example, computation in mathematics — but worse in the higher order skills, such as problem solving.

"To attend primarily to the minimal competencies as they are currently defined," Forbes said, "shows a lack of foresight and leaves many students without adequate preparation for future learning and employability. By the time students reach age 17, many do not possess higher-order skills, including problem solving, analysis, critical thinking, and evaluation."

The National Center for Education Statistics predicts the number of high school graduates in 1990 will be about 2.4 million. Based on that projection, Forbes noted: "If the decline in higher order skills is not reversed by then, as many as 2 million students may graduate without the essential skills required for employment in tomorrow's technically oriented labor force."

Translating Needs to Changes

What does all this mean for education? What are the "basics" of the future? Forbes, reflecting on his work with NAEP, said the basics in the years ahead won't be adding and subtracting, but "higher level" skills. He listed the following as examples:

- Evaluation and analysis skills.
- Critical thinking.
- Problem-solving strategies.
- Organization and reference skills.
- Synthesis.
- Applications.
- Creativity.
- Decision making, given incomplete information.
- Communication skills through a variety of modes.

What types of skills will be required by a typical worker of the future? Forbes said a job description in 1990 will likely include the following:

1. Monitor work flow of production systems.
2. Prepare input for and execute utility programs.
3. Interface with other departments about possible enhancements and determine computer program errors.
4. Provide technical liaison with users.

5. Evaluate and maintain new software/hardware.

Forbes summed up his account of a future job description with this rather mild observation: "Students lacking minimal skills can expect to encounter stiff competition for employment and advancement in the labor force."

What Can Be Done?

In 1981, the Council for Basic Education (CBE) held a conference in Washington, D.C., on the burgeoning reform movement in American high schools, and from that day-long meeting, writer Bruce Boston drew the following three axioms summarizing the situation:

- The problems facing secondary schools in America have been accurately described and diagnosed. We know what's wrong.
- We already know how to correct much of what's wrong. We can educate our children better.
- What we lack, mostly, is the political will to implement what we know.

That's where school superintendents, as educational leaders, come in — setting the priorities straight.

Many of the problems are curricular, which, in large measure, can be turned around through systematic planning by strong willed administrators.

John Casteen, dean of admissions at the University of Virginia, set forth at the CBE conference what he saw as the characteristic weaknesses of the high school program:

- There has been a 10-year slump in the number of "academic solids" — English, math, history, science, and foreign languages — appearing on high school transcripts. The typical student comes with relatively little in the way of foreign language, higher math, or science.
- He has, however, more "applied" or "alternative" learning experiences, but almost without exception, these mean "diminished content and consequently diminished learning."
- There is too much "pass/fail" grading, which deprives both student and instructor of "hard-edged measures of competence."
- The quality of students' writing has deteriorated to the extent that a typical application essay "betrays both an inability to organize material and a high incidence of formal errors."

Casteen complained about grade inflation, a trivialized curriculum that offers "easier, flashier ways to get through school with less effort and less achievement," and an abbreviated curriculum that loads nonacademic chores onto the classroom hours and places academically peripheral activities ahead of formal study.

"Colleges in the last 15 years have repeatedly lowered both their graduation requirements and their entry requirements," Casteen told the conference. "Remediation is now the rule on virtually every campus in the United States, and often for 25 to 40 percent of the enrolled freshmen students."

If that is the problem, what is the solution? Insist on more of a "core curriculum" that emphasizes general learning and solid academic courses, recommends Ernest Boyer, former U.S. commissioner of education and now president of the Carnegie Foundation for the Advancement of Teaching.

Boyer is at work on a Carnegie report that will seek to redefine a core curriculum for U.S. high schools.

Similarly, Gordon Cawelti, executive director of the Association for Supervision and Curriculum Development, has put together a network of about 20 innovative high schools nationwide that are seeking a reform of their curricula. Cawelti's group is asking the fundamental question, "What knowledge is of most worth for graduates who will be moving into the 21st century?"

NASSP Leader Outlines Changes

Scott Thomson, executive director of the National Association of Secondary School Principals (NASSP), set forth his priorities for the high school curriculum in an NASSP conference on just that topic. Thomson agreed with the view taken by the Council for Basic Education, i.e., the problems of American high schools are fairly well known, and it is up to educational leaders to begin solving them.

"Every high school diploma, by definition, should include a general education component. Priority should be given to fundamental communication and computation skills. . . . Ample evidence exists that many youths are today deficient in verbal skills and reading comprehension because they watch television instead of reading or writing and conversing at home," Thomson said. The schools, therefore, must begin to make up

the difference. More, rather than less, reading and writing in schools today is required for an adequate education.

"This means that schools, as a minimum, must require English courses for each year a student is in school, plus an additional requirement for two years of reading and writing for the non-college-bound student and three years of any combination of foreign language or reading and writing classes for the college-bound students between grades 7 and 10," the NASSP executive director said. "This emphasis will provide a sufficient base for high quality work during the last two years of high school in preparation for college or for the working world.

"The second element of a necessary general education component for the diploma involves computational skills and quantitative thought, the essentials for participation in tomorrow's technological society," Thomson said. "Mathematics is the language of technology. All students should understand basic mathematical concepts and applications, not just decimals and percents but also statistics and computer mathematics and metrics. In addition, the simpler algebraic and geometric principles need to be mastered for adequacy in the adult society."

Thomson continued: "The level of mathematics study currently required for the diploma is a national disgrace. The United States is far behind all other technological societies in the amount of mathematics required of all its high school graduates. In Germany and Japan, for example, all high school students take some form of math for at least two years, and college-bound students must take math every year of school. Our requirements for the diploma should be of similar caliber. If their students can do it, so can our students. We cannot prosper in the long run on a cotton candy curriculum.

"Computer literacy and science form the other two legs of a modern technological society. One year of biological and one year of physical science should be expected of every student obtaining the diploma, along with computer literacy. These requirements, once in place, should constitute the centerpiece of a general education requirement," Thomson concluded. "The diploma must be better tomorrow than it is today or the United States can no longer lay claim to being the best educated nation in the world."

What Schools Are Doing

In interviews and responses to the survey for this report, school administrators made two messages clear: (1) They want each student to get the best possible education and (2) they also want to get the most out of each dollar in the school budget.

To accomplish both objectives requires masterful planning — planning that focuses on improving the total educational program, not just on making a few changes piecemeal.

So, while many school districts are carefully planning how they can reduce some course offerings, they are also reviewing course content, weighing the merits of adding more academic "solids," and planning how to incorporate into the curriculum the new skills and knowledge students will need for the 21st century.

Planning Curriculum Review

A topic of increasing importance in school districts is curriculum review. Declining enrollment, staff reductions, public demands for "quality" education — all are pressuring schools to clearly plan and define their curriculum.

Here are three methods for doing just that:

Method #1: Staff/Community Involvement

Secondary school faculty members played a key role in redefining a core curriculum for the suburban Weston (Mass.) Public Schools.

Supt. Daniel S. Cheever Jr. and Assistant Supt. Gus A. Sayer said any district planning to define its core curriculum should keep three elements in mind:

1. A core curriculum should reflect the values and aspirations of the community served by the schools. In Weston, the school board mails a 100-question attitude survey to all households every few years to determine residents' opinions about the district's academic, art, athletic, and extra-curricular program. The results, which are tabulated by computer, are used as one gauge of community attitude. Some additional methods include both formal and informal discussions with the school board and other members of the community, individually and in groups.

2. A core curriculum should take into consideration expert opinion about what should be taught and learned. In Weston, one way this is done is through "program reviews" on a regular basis by a committee of local residents, students, faculty, and university scholars. Each committee evaluates the district's curriculum in a single discipline, taking time to observe classes, inter-

view students, faculty, and parents, and reviewing curriculum materials and student work. The committee prepares a report of its findings and recommendations for change where appropriate.

3. Final decisions about a core curriculum should be made by the elected school board, with appropriate input from professional staff and with due consideration given to the public's views and expert opinion.

The faculty committee charged with defining the core curriculum in Weston followed this process: First, each department was asked to develop a long-range plan to reflect its adjustment to declining enrollment and to answer the

NCTM Cites Future Trends in Teaching of Mathematics

If one subject in the curriculum is going to change greatly in the future, it's mathematics. The computer and hand-held calculator are already changing how mathematics is learned, and a computer-oriented society will require different mathematics skills of the average citizen.

For example, it will be more important that a person have a good sense of numbers and can estimate well than to be able to calculate precisely. Calculators can do quick and precise figuring; the user must know whether the answer seems right. Using a computer or calculator, your checkbook is almost as likely to be off by $1,200 as 12 cents if you aren't paying close attention to decimal points.

The "new math" of the 1960s may have been judged a failure by many, but the "old math" isn't the answer either, said Shirley Hill, a mathematics professor at the University of Missouri at Kansas City and the past president of the National Council of Teachers of Mathematics (NCTM).

"Comforting as a return to the 'old math' may be for many parents, some students, and a few teachers of mathematics, every observant layman and all thoughtful teachers know that more practice with long division problems or six-place trig tables can make only trivial contributions to the quantitative literacy necessary to live and work productively in the 1980s and beyond," Hill wrote in a curriculum report for the National Association of Secondary School Principals.

In 1980, Hill and NCTM issued a series of recommendations as a guide to future directions in the teaching of mathematics. They include the following:

1. Problem solving must be the focus of school mathematics in the 1980s. The current curriculum emphasizes computational skills apart from their application, Hill wrote. Instead, the curriculum should "emphasize the selection and use of these skills in unexpected, unplanned settings." Students should be confronted with problem situations in many forms — for example, in a graph or chart — and be required to use their mathematics reasoning ability to solve the problem.

2. The concept of basic skills in mathematics must encompass more than computational facility. Too many teachers "limit basic skills to routine computation at the expense of understanding, applications, and problem solving." Dangerous, too, is the assumption that skills from one era will suffice for another. Teachers should put *increased emphasis* on: collecting, organizing, presenting, and interpreting data; estimating measures; mentally estimating results of calculations; and using technological aids to calculate. NCTM recommended *decreased emphasis* on: mastering highly specialized vocabulary not useful later in either mathematics or daily living; converting measures given in one system to corresponding measures in another system; and working with tables whose usefulness as aids to calculation has been supplanted by calculators and computers.

3. Mathematics programs must take full advantage of the power of calculators and computers at all grade levels. They should

question: What in our area is essential for students to learn?

The responses of each department were then analyzed by department heads and key administrators. They defined four models for a core curriculum. The models were discussed by all faculty members and, based on their comments, key administrators developed a single proposal. It was debated again by the full faculty. Alternatives were offered, but eventually the faculty endorsed a proposal.

Key administrators then took over. They discussed the proposal with students and parents and eventually prepared a final proposal for the

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be incorporated into the instructional program as aids in more complex problem solving. "All students should have access to calculators and increasingly to computers. . . . A computer literacy course, familiarizing the student with the role and impact of the computer, should be part of the general education of every student." Secondary students should have the opportunity to take advanced computer science courses, and teachers of subjects other than mathematics should seek to use calculators and computers in problem solving.

4. The success of mathematics programs and student learning must be evaluated by a wider range of measures than conventional testing. Evaluations should cover the full range of a program's goals, including problem solving and problem-solving strategies. SAT scores or minimal competency tests should not be construed as an adequate measure of a program's success.

5. More math study must be required for all students, but through a more flexible curriculum than the single, college preparatory track. "Polls show that the public recognize mathematics is an essential subject for all students, yet it is typical to find that only one year of mathematics is required for students in grades 9-12," Hill wrote. But the answer isn't keeping all students longer in the traditional track. And even the traditional track needs some rethinking. Vocational and technical students need a greater sophistication about mathematics for the jobs of the future, but they don't necessarily need more algebra or calculus. "For those whose formal education will end with high school," the new curriculum should include "a collection of courses based on consumer and career needs, computer literacy, and quantitative literacy."

For advanced students, the increasing use of computers "may no longer demand the centrality of calculus that has traditionally been demanded for all students." Further, "since there are usually multiple approaches to all but the most trivial problems, not all students should be expected to proceed in the same way. Value should be placed on a thoughtful and productive approach, not solely on a single correct answer."

Many mathematics educators are quick to point out that, as the late Chicago Mayor Richard J. Daley often put it, the future is still ahead of us. Despite the widespread use of calculators and the growing use of computers in schools, calculation still occupies almost all the instructional time in most mathematics programs.

Twila Slesnick, director of the computer education program at the University of California's Lawrence Hall of Science, says she is pessimistic about the future of computers and calculators in education because they are being plugged into the traditional mathematics curriculum rather than radically changing it. "Most of what you see with computers — about 85 percent, according to several studies — is drill and practice in arithmetic. Students can do the same thing with a workbook, which is cheaper and just as effective."

Schools need to move in the direction suggested by NCTM — away from computation, fractions, and long division and toward problem solving — if computers are going to avoid joining the list of educational innovations that have been long on promise and short on delivery, Slesnick concluded.

Note: To get a copy of NCTM's guide for math, *An Agenda for Action: Recommendations for School Mathematics in the 1980s,"* contact the National Council of Teachers of Mathematics, 1906 Association Dr., Reston, Va. 22091.

school board. Public participation was not over, however. The board brought the proposal before parents and students prior to final adoption of a core curriculum and higher graduation standards.

District administrators advise that considerable time (18 months in Weston) must be allowed for this type of process, but the result is a curriculum more consistent with local needs and desires. An additional benefit, they add, is that the district now knows what courses to preserve as enrollment declines. And this gives the staff a greater sense of job stability.

Method #2: Outside Help

Small districts with limited staffing have a particularly difficult time in evaluating curriculum and making changes when necessary.

Faced with just such a problem, Lois I. Bartels, the new superintendent of the 525-student Pecatonica Area Schools in Blanchardville, Wis., turned to the "School Evaluation Consortium" (SEC) for help.

Formed in 1979 by Wisconsin school districts in cooperation with the University of Wisconsin-Madison's School of Education, the consortium describes its major mission as improving accountability for district educational programs.

Districts joining the consortium commit themselves to assessing their curriculum and its effectiveness. The assessments can be used not only for improvement efforts but also to report to community members or to state and federal agencies.

When a district joins the consortium, an SEC staff member conducts a "resource analysis" to determine what the district is already doing and then trains district staff in how to build a planning model. A district may also decide to ask SEC for help in conducting an audit of its educational

Federal Report Documents Need To Close 'Science Gap'

The very thought of progress and the future usually brings forth one image and one word — science. In this century, science has been the prime vehicle for progress in medicine, travel, business, or a hundred other undertakings. Yet the future of science in U.S. schools doesn't look as bright as it once did. When looking ahead in the 1980s, many educators cite the need to close the "science gap," a mood startlingly reminiscent of the post-Sputnik days in the late 1950s.

The need has been documented. In its final days, the Carter Administration, in a report, *Science and Engineering Education for the 1980s and Beyond,* set forth the dimensions of the problem and suggested several directions. Here are some highlights:

- "There is today a growing discrepancy between the science, mathematics, and technology education acquired by high school graduates who plan to follow scientific and engineering careers and those who do not. Scientific and technical literacy is increasingly necessary in our society, but the number of young people who graduate from high school and college with only the most rudimentary notions of science, mathematics, and technology portends trouble in the decades ahead. The current trend toward virtual scientific and technological illiteracy, unless reversed, means that important national decisions involving science and technology will be made increasingly on the basis of ignorance and misunderstanding." This report, written by the U.S. Department of Education and the National Science Foundation, argues throughout that America's main problem is not, as it may have been in the Sputnik era, to find enough qualified scientists to do battle with the Russians in the lab or even enough engineers to compete with the Japanese or Germans. Rather, it is to educate all Americans about science and technology since both will play an increasing role in everyone's life in the future.
- Most high school students take appallingly little science or mathematics, and the percentage of students dropping out of such courses after 10th grade is growing. "Only about one-sixth of all secondary students

program and plans for improvement.

For more information, contact the School Evaluation Consortium, 490 Old Education Building, University of Wisconsin, Madison, Wis. 53706.

Method #3: Curriculum Study Committee

The 3,000-student Lawrence (Kans.) School District 497 established a curriculum study and textbook adoption process that requires review of each curriculum area on a six-year basis.

Curriculum study committees in the district must include an overlapping grade level structure, and they must consider articulation of the curriculum from elementary to senior high levels.

The committees are charged with these responsibilities:

- Establishing goals and objectives.
- Determining scope and sequence.
- Evaluating and recommending basic textbooks for adoption.
- Evaluating and recommending supplemental textbooks.
- Planning implementation of programs and textbooks.
- Evaluating the program and instructional materials.
- Establishing a subcommittee or maintenance committee to continue efforts during the six-year cycle to monitor implementation, evaluate, and propose modifications.

A Tough Planning Problem: Reducing the Curriculum

Maintaining quality education while experiencing declines in enrollment and financial resources is a difficult planning problem for both large and small districts. Often they are forced to reduce the number and kind of educational pro-

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currently take junior- and senior-year courses in science and mathematics." These students "have effectively eliminated, by the age of 16, the possibility of science or engineering as a career.

- "There has been, over the past 15 years or so, a shrinking of our national commitment to excellence and primacy in science, mathematics, and technology. The lessening of the commitment has not been the result of a conscious decision on anyone's part, but it has nevertheless pervaded our society.
- "The declining emphasis on science and mathematics in our school system is in marked contrast to other industrialized countries. Japan, West Germany, and the Soviet Union all provide rigorous training in science and mathematics for all citizens. We fear a loss of our competitive edge."
- In Japan, 20 percent of all baccalaureate and about 40 percent of all master's degrees are granted to engineers. This compares to about 5 percent at each degree level in the United States. "Japanese education officials point out that students view the engineering degree as a 'ticket' to business and social success in much the same way as the liberal arts degree (or a law or M.B.A. degree) was viewed in the United States.
- "Mathematical instruction has a more rapid pace in Japan than in the United States, and a much higher proportion of students take the more advanced courses. Geometry is taught in the 7th, 8th, and 9th grades. Trigonometry is also taught in the 9th grade. Calculus, probability, and statistics are offered in high school."
- Soviet students are exposed to a mathematics and science curriculum that, according to University of Chicago Prof. Izaak Wirszup, far surpasses that of any other nation. For example, an estimated 500,000 Americans take calculus in their last year of high school or first year of college, but calculus is part of the required curriculum for over 5 million Soviet students. (Whether Soviet students are learning more science and mathematics, however, is an open question.)
- In Japan, Germany, and the U.S.S.R., national policy promotes comprehensive science and math education, with national leaders explicitly contending that economic success — and in the case of the Soviets, military success — depends on educational programs in mathematics, science, and engineering.

grams offered to students.

The problem comes in trying to determine which courses to eliminate, add, or modify. It cannot be solved satisfactorily by school administrators working in isolation from board, staff, and community. Administrators can make the desired changes, however, by involving these groups in planning.

How do you do it? An answer comes from a task force of the National Association of Secondary School Principals (NASSP) chaired by Philip E. Gates, assistant superintendent of the Scottsdale (Ariz.) School District. The task force developed an eight-step process for curriculum reduction:

The steps are:

1. Establish the charge. The board of education should state the task in writing, assign it to a committtee, and set a date for the final report.

2. Appoint the committee. It should include staff, students, parents, and other community members.

3. Orient the committee. At the first committee meeting, the superintendent should delineate its charge and provide all pertinent information about the school district.

4. Develop course categories. The NASSP task force recommends that three categories be established to designate the priority of courses: *"essential"* (required by law, board policy, or an accrediting agency), *"desirable"* (fulfills postgraduate admissions requirements or career goals or courses with strong student or community support), and *"specialized"* (including highly specialized electives, those taught by other community agencies, or those offered only if sufficient funding is available).

5. Formulate curricular priorities. The committee must agree on criteria to place the courses in the categories developed in step 4. It must consider the effects of reducing specific curricular offerings. How, for example, would particular groups be affected; what would happen to teacher or student morale; how would reduction in a specific area affect the balance of courses in the curriculum?

6. Consider the cutbacks. The committee asks each department to present its courses of study, along with student evaluations and its own evaluation of each course. Using these evaluations, the committee members should then place the programs in the priority categories.

7. Develop alternatives. The committee should examine the alternatives available to the district to maintain necessary or desirable course offerings. Among the alternatives suggested by the task force are the following:

- Seeking federal/foundation/business funding and cooperation.
- Establishing fees for some courses (if legal).
- Providing credit for independent study, community college, evening, or summer courses.
- Establishing cooperative course offerings with other local public and private schools.
- Using existing staff more efficiently.
- Offering certain courses in alternative years.
- Using more effective media instruction.
- Using individually paced learning programs.
- Using volunteers and college interns as staff assistants.

8. Prepare the final report. The committee should develop a preliminary summary of its recommendations and distribute it to the professional staff and public. An open meeting should be held to receive comments, followed by preparation of a final draft of the recommendations. After receiving this draft, the superintendent should submit it to the board, along with recommendations for action.

Note: A fuller description of the model and sample forms for student and staff evaluation of courses (as suggested in step 6) are contained in *Reducing the Curriculum: A Process Model,* available for $3 a single copy plus $2 postage and handling (discounts on multiple copies) from the National Association of Secondary School Principals, 1904 Association Drive, Reston, Va. 22091.

Upgrading the Math/Science Curriculum

The considerable amount of attention focused on the math/science "crisis" in elementary and secondary schools started to yield some results in mid 1982. See the description of plans and proposals to upgrade téacher skills and to attract college students to math and science majors in the chapter on "Teachers."

Additional planning efforts to upgrade math and science education are being started by business and industry, professional societies and associations, and the U.S. Congress. See, for example, the Jan. 10, 1983, issue of *Education U.S.A.* for a sampling of solutions that are both proposed and under way. (Reprints are available for $2.25 each, 10 copies minimum order, from the National School Public Relations Association, 1801 N. Moore St., Arlington, Va. 22209.)

For ideas for curriculum planning in science, contact the nation's "best science programs," as

selected by the National Science Teachers Association (NSTA). The following schools earned awards for the best programs: Green Acres Elementary School, Santa Cruz, Calif. (elementary science and nutrition program); Jefferson County R-1 School District, Lakewood, Colo. (elementary science and physical science); Brandywine High School, Wilmington, Del. (biology); Merritt Island (Fla.) High School (inquiry approach); North Toole County High School, Sunburst, Mont. (inquiry approach); and Wausau West (Wis.) High School (integrated approach, relating science to students' lives).

Information about these programs, along with 43 others selected for having exemplary approaches to teaching biology, physical science, science/technology/society, inquiry, or elementary science, is available from NSTA, 1742 Connecticut Ave., N.W., Washington, D.C. 20009.

Advice on improving math programs. How do you know if you have a good math program or if it needs to be improved? If the latter is the case, where do you start the improvement effort?

One comprehensive resource to answer both those questions is the *Handbook for Planning an Effective Mathematics Program, K-12*, developed by the California State Department of Education.

This handbook identifies and explains the essential components of a high quality program: the content (what students learn); and support for implementation of a quality program (the necessary preparation for learning to take place).

The handbook contains a checklist for assessing the quality of a school's math program. It should be useful for administrators, math specialists, and other school personnel, and for community advisory groups.

Order from Publications Sales, California State Department of Education, P.O. Box 271, Sacramento, Calif. 95802; $2 single copy, plus sales tax for California residents.

A Plan To Improve Foreign Language/ International Studies Program

When former President Carter's Commission on Foreign Language and International Studies reported in late 1979 its findings on the dismal condition of these two curriculum areas in the nation's schools, Illinois was one of the first states to respond. The State Board of Education sponsored a series of meetings to discuss the findings, the needs for the future, and the role of schools in reversing the situation.

A committee from the Glenbrook High Schools, Glenview, Ill., one of the delegations at the state-sponsored meetings, started to investigate the feasibility of developing an international studies program.

Forrest Sheedy, then superintendent, supported the idea because he thought such a program would be an appropriate way for schools to tackle what he saw as the most difficult problems facing the world in the future: people-to-people problems.

After a year's planning by a committee of 18 district administrators, supervisors, and teachers, the Glenbrook Academy of International Studies was born.

The academy's curriculum reflects the ideas of the committee members. "At the time, there were no other programs for us to look at. That's one of the problems of being on the cutting edge," said Robert Adams, program director, in an interview for this report.

The planning committee, however, was blessed

Planning for the Needs of the Gifted

Many respondents to the survey for this report expressed concerns about their ability to maintain programs for gifted and talented students.

Some districts are planning to keep such options alive by offering a combination of alternative programs. Here are some of their ideas:

- ____ Independent study oportunities for individuals or small groups.
- ____ Advanced placement classes.
- ____ Interdisciplinary approaches.
- ____ Flexible time periods.
- ____ Opportunities to work with gifted/talented peers.
- ____ Using the community as a resource:
  - ____ mentorships.
  - ____ community resource volunteers.
  - ____ field trips.
  - ____ internships with experts.
  - ____ use of role models.
- ____ Clubs and extracurricular activities:
  - ____ creative writing.
  - ____ chess.
  - ____ computer clubs.
  - ____ theatre.

Superintendents Predict Coming Curriculum Changes

The survey for this Critical Issues Report asked AASA members what immediate or long-range changes they foresaw in the school curriculum in their school districts. Here are some of their replies:

"More emphasis on math and science curriculum at the high school level; a rapid change to the use of computers in several subject fields; required mastery of at least two languages; more emphasis on the gifted and talented; more and better curriculum for those who speak English as a second language." — Eli Douglas, Superintendent, Garland (Tex.) Independent School District

"There will be a reemphasis on the 3Rs. Movement in the new technologies will be slow, mainly due to decreased resources. We seem to be in an era of retrenchment." — Joseph Pellegrin, Oshkosh (Wis.) Area Schools

"Secondary course consolidation; secondary students traveling to other high schools for specific courses; use of cable TV; expansion of computer education into all subject areas." — Ronald E. Goldken, Superintendent, Elmbrook School District, Brookfield, Wis.

"Continued strides in competency based education with emphasis on the basics; future studies and global education; increase in education technology; more mapping and time on task of all curricular activities." — Harold R. Hosey, Superintendent, Emporia, Kans.

"More technology in methodology of instruction; more diversification of course offerings; continued downward movement of content and skills." — Robert L. Zorn, Superintendent, Poland (Ohio) Public Schools

"Probably moving more to a tracking system because of small numbers of students and availability of funds." — Ennis J. Bisbano, Superintendent, Bristol (R.I.) Public Schools

"Higher standards in academics; more electronic education; more emphasis on vocational. I see a tracking system coming in both vocational and academic areas." — J. Clair Morris, Superintendent, Iron County School District, Cedar City, Utah

"Fewer choices; more requirements; stronger demands from teachers for quality work." — Charles Nunley, Superintendent, Arlington (Va.) Public Schools

"I see grades K-6 staying about the same — concentrating on basic skills. I see grades 9-12 becoming more rigid, with fewer options for students. Many 'frills' — the life blood of creative students — will be hard pressed to remain in the regular program. Health and computer type programs will be increased." — Clem Bodensteiner, Superintendent, Belle Plaine (Iowa) Community School District

"Bare bones; fewer electives; loss of exemplary programs." — Robert Block, Superintendent, School District #564, Thief River Falls, Minn.

"We are returning to tracking at the high school, with an emphasis on rigorous instruction in basic skills at *all* grade levels." — Wayne Gersen, Superintendent, School District #44, Bethel, Maine

"Fewer sections of specialized courses at the high school level, advanced chemistry, for example; fewer elementary offerings in art, music, and physical education; fewer consultants available, for example, for remedial reading; more use of blackboards and more use of computers in classrooms." — William McKinstry, Superintendent, Alma (Mich.) Public Schools

"New instructional delivery systems; more computer assisted instruction; less print, more visual materials." — John M. Cipollini, Superintendent, Penn-Delco School District, Aston, Pa.

"Enrollment declines will force program consolidation; more of a need to share teachers with other districts to maintain program; greater reliance on technology, i.e., microcomputers; attempts to provide students with skills to analyze the ever increasing amount of information available as a result of the knowledge explosion." — Lawrence A. Kiley, Superintendent, Union Springs (N.Y.) Central Schools

in multiple ways: The board fully supported the concept "as the most exciting program it has had to deal with," Adams said. In addition, enrollment is steady and not in decline, and the district is one of the few in the state with a budget surplus. The community is also supportive. Many of its families come from around the world to work in the international headquarters of corporations located in the district's upper-middle class bedroom communities.

Local business continues to support the concept, noted co-director Dennis Gilliam. "Chicago area commercial leaders have signalled their need for employees who speak languages fluently, understand international lifestyles, and possess training in business. Our team welcomes local business people who are active in international commerce. Their urgency about the need for proficiency in every aspect of international studies is a motivator for us and our students."

Adams cited additional positive factors that contribute to the workability of the program: "If you can take the best teachers, the best idea people, and in addition, get the pick of the crop of the incoming freshmen, you've built in several success factors that have dynamite possibilities."

How the academy works: Each year, 30 to 35 students are accepted into the program from among 45 to 60 applicants. Those accepted are, in Adams' words, "the best and the brightest" students from among the freshmen entering the two high schools in the 4,800-student district.

Selection is made through testing and interviews. In addition, students must have supportive, specific recommendations from their 7th- and 8th-grade teachers in the subjects included in the academy curriculum.

The academy offers students carefully coordinated, accelerated training in English, foreign languages, and social studies. Students must complete a four-year major in one foreign language, and the academy strongly recommends completion of a two-year minor in a second foreign language. All members of an enrolling class study the same major language.

The major language selected for students who entered the academy in 1981 was German. In 1982, the major language was French; in 1983, Spanish. The chief emphasis in the language class is on development of speaking competency.

In conjunction with the social studies component, a rigorous program of cultural studies accompanies the language curriculum. In the ninth-grade, students study the non-Western world. They investigate American life and letters in their sophomore year.

Students are expected to read current events and attend a Sunday afternoon international film series.

English and social studies courses are combined at the academy and are taught by a teaching team consisting of one English and one social studies teacher. Academy classes are contiguously scheduled and meet for a total of two and one-fourth hours each day.

The program is as demanding on the teachers as it is on the students. Gilliam put it this way: "During interviews with faculty interested in joining the teaching team, we clarify a need for professionals who have demonstrated teaching success, a strong record of curriculum development, and a willingness to devote extra hours to students. In addition to the regular school calendar, the academy agenda includes approximately 12 evening meetings, one entire Saturday for student interviewing, six Sunday afternoons, summer curriculum work, and countless hours of common planning. Our guidance specialists devote more than 200 hours solely to customizing student schedules."

By 1984, the academy expects to have 12 teachers, two guidance counselors, and the codirectors spending a portion of each day serving the specialized needs of the 120 students enrolled in the program.

"With these teachers and this program, we intend to take the students as far and as fast as we can," Adams said. "There is very little that is remedial about the program, and we don't intend it to be so."

In fact, the opposite seems to be happening. Adams noted that the academy expected to start teaching the English/social studies portion of the curriculum in the students' major foreign language.

The program directors do not deny that the cost of running the program is high. But, Adams said, the students enrolled "are the kind from whom we can reasonably expect a significant return on our educational investment in terms of the kinds of things they can contribute to the society."

For more information, contact Robert Adams or Dennis Gilliam, Glenbrook Academy of International Studies, The Glenbrook High Schools, 1835 Landwehr Road, Glenview, Ill. 60025.

Note: The Glenbrook program plus 16 others now under way in 12 states and Canada are

described in *Global Education: A Personal Experience*, a new booklet produced by AASA as part of a multi-media kit with the same title. The booklet also contains ideas for implementing the concept and a guide to selected resources. Included in the kit are a primer for principals and teachers which explains the concept of global education, a slide/tape show, and two cassette tapes. (Order from AASA, 1801 N. Moore St., Arlington, Va. 22209; Stock No. 021-00862; $89.95 per kit plus $6.30 shipping and handling; quantity discounts.)

Futures/Global Education: A Program To Watch

The world isn't in as bad shape as we've been led to believe, and we need to get this message across to today's students so they will not be too pessimistic about the future.

Getting that message across to school administrators, curriculum planners, parents, and other community members is the mission of the Hudson Institute, a nonprofit policy research organization.

Herman Kahn, chairman and director of research for the institute, says the recent predominance of fearful forecasts about the future is "extraordinary."

Writing in the January 1983 issue of *The American School Board Journal*, Kahn expanded on his view: "In classrooms, in the newspaper, and on television, children are being taught that the advanced, industrialized capitalist nations (and especially the United States) are using up and running out of energy; are carelessly and selfishly polluting our environment; are exploiting the poor 'have not' nations to enrich the 'haves' even further; are eating too much artificial, additive-laden, junk food while letting most of the world starve; and are sacrificing safety for profit in using new technologies."

Of equal significance, in Kahn's view, is what students are *not* being taught. Among the examples he cites are the following: "that the wealthy nations play a constructive and essential role in furthering world economics; that rapid economic growth has changed many non-Western nations from poor to middle class; and that most resources are more accessible and less costly today than ever before."

Kahn charges further that, with some exceptions, the texts and courses dealing with "futures" education are not of high quality and that two well known and much quoted studies about the future (i.e., the *Limits to Growth* report issued by the Club of Rome in 1972 and the *Global 2000 Report* issued by the Carter Administration) are "almost completely obsolete" or "inaccurate."

A new direction: To improve the factual material used for instruction in high schools and colleges, the Hudson Institute inititated in 1982 a five-year "Visions of the Future" program, with financial support from the Readers' Digest Foundation and additional sources.

It intends to collect and analyze the materials now being used in schools, to design a new "futures" curriculum, to develop materials and teaching techniques for various subject and grade levels, and to try out and evaluate the materials.

The program is initially developing and testing new materials through a pilot project set up in collaboration with Arizona State University and several school districts in the state. In addition, the Hudson staff is working with New York State teachers and school systems that wish to adapt the Visions materials.

For more information about the program, contact the Hudson Institute, Quaker Ridge Road, Croton-on-Hudson, N.Y. 10520.

Chapter VI

Computers/ Technology

In December 1982, the Office of Technology Assessment (OTA) of the U.S. Congress released its report on the potential role of the "new information technology" in education. It defined information technology to include communications systems such as direct broadcast satellite, two-way interactive cable, low-power broadcasting, computers (including microcomputers and hand-held computers), and television (including video discs and video tape cassettes).

The report, a 269-page document which was two years in the making, explores current conditions, impediments, and future prospects for the use of technology.

OTA summarized its findings as follows:

- The growing use of information technology throughout society is creating major new demands for education and training in the United States and is increasing the potential economic and social penalty for not responding to those demands.
- The information revolution is creating new stresses on many societal institutions, particularly those such as public schools and libraries that traditionally have borne the major responsibility for information services.
- Information technology holds significant promise as a mechanism for responding to the education and training needs of society, and it will likely become a major vehicle for doing so in the next few decades.
- Much remains to be learned about the educational and psychological effects of technological approaches to instruction. Not enough experience has been gained to determine completely how technology can most benefit learners or to predict possible negative effects of its use. Given this insufficient experience, caution should be exercised in undertaking any major national effort, whether federally inspired or not, to introduce these new technologies into education.

"If properly employed," the OTA report concluded, "information technology has certain characteristics that suggest it will be invaluable for education. For one, information technology may be the only feasible way to supplement teaching capability in schools faced with reduced teaching staffs and larger class sizes. For another," it added, "information technology is capable of distributing education and training, both geographically and over time."

OTA described some of the types of technology of particular interest to educators. Here's a breakdown:

Video. The video disc medium, which stores programming on a disc resembling a phonograph record, has elicited much interest from educators. OTA predicted a "very high" growth rate in the future for video cassette recorders, although it offered no breakdown of projections by home and school markets. One market analysis by Strategic, Inc., suggested that educational programs and discs would become widely available by 1985 and that over 250,000 video disc players integrated with microcomputers would be in use. Again, the school market was not isolated in the projections. It should be noted, however, that officials of the Department of Education estimated a total of fewer than 100 video disc units in schools in early 1982.

Cable. No longer viewed simply as an antenna shared by a community, cable "seems to have passed a critical threshold and is growing rapidly." The number of operating systems is expected to grow to 6,000, serving 22 million households, by 1985. This represents a 42 percent increase in operating systems within five years, with a dou-

bling of subscribers. For educators, the good news is that the new cable installations will provide many more channels (e.g., from 30 to 100 channels by 1990, compared to fewer than 12 channels in some of the early cable systems). The additional capacity would allow for more educational telecasts to smaller audiences than are required to support mass market TV.

Satellite communication. "In slightly over a decade, communication satellites have become a major component of the national and international communication network," according to OTA. Further growth in this area is tied to that of the cable system.

Information networks. Various services have been developed to provide owners of microcomputers and terminals with access to computer and data services over communication networks. Some of the systems allow customers to communicate with central network data bases and with each other through a simple form of "electronic mail." Already available through these networks is information ranging from bibliographic and reference data to news articles appearing in a number of magazines and newspapers, to information on medicine, law, economics, and natural resources. This business is expected to grow rapidly over the next decade.

Electronic conferencing. Three categories of electronic conferencing are available, depending on the technology used: audio (which uses the telephone and a loudspeaker and microphone system), video (which adds television images of participants or of charts or graphics), and computer conferencing (which transmits messages through a central computer that forwards them on request to another participant). All of these modes offer an alternative to traveling for meetings. Extensive research on all three modes revealed advantages and disadvantages of each, with video conferencing the most expensive. Computer conferencing systems, used experimentally for some time, are now appearing on the commercial market.

Computers. The OTA report paid particular attention to the role of computers in society and what this implies for schools. "Computers and computer-based information services will be ubiquitous by the next century, and learning how to use them effectively is a basic skill that will be required for many and perhaps most jobs."

Barriers to Use

OTA noted that some of these new products and services will not survive the competition for the consumer's dollars. And, it added, "educational users are not likely to stimulate the development of technology specifically oriented to their needs. Rather, they will use products and services designed to serve other consumer markets, such as business and entertainment."

The report cited these additional barriers to widespread use of the new technology in schools:

- **Institutional barriers.** Some adaptations of curricula, schedules, and classroom organization will be needed, the report said, "but the changes are not likely to be extreme."
  [Note for planners: Experts say districts should plan for the use of new technology, when appropriate, before being overcome by it. They point out that technology, particularly computers, can supplement the current educational system.]
- **Teacher training.** Here the problems are serious. Too few teachers are qualified in the use and production of good curriculum materials, the report noted. Add these dilemmas: Many schools are faced with a shortage of qualified science and mathematics teachers (those most likely to lead the way in computer-based education), and most of the teacher training colleges are providing inadequate instruction in the use of technology to new teachers.
- **Lack of adequate software.** OTA found the quality of educational software "not very good." And, it added, production costs of high-quality software are expensive. Large firms are relunctant to risk developmental money in a new market, and some are concerned about adequate protection, e.g., copyrights, for their products.
- **Skepticism about long-term effects.** Some educators are seriously concerned, OTA said, that the long-term effects on learning of substituting technology for traditional teaching methods are not sufficiently understood. "While acknowledging that computers or other technologies may have some limited utility in the classroom for drill and practice, or for instruction in computer literacy, they fear that any widespread adoption of technology for education could have deleterious effects on the overall quality of learning."
- **Cost.** The costs of computer hardware and communication services are dropping, but investment in them still represents a substantial commitment by financially pressed schools.

Note: Despite all of the barriers detailed by

OTA in its report, it offered this encouraging conclusion: "For many educational applications, information technology can be an effective and economic tool for instruction."

For school planners, then, keeping alert to new developments in information technology is a must.

For more information, see *Informational Technology and Its Impact on American Education.* Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402; $8 single copy; Stock #052-003-00888-2.

How Much Use?

While the OTA was coming up with recommendations on the appropriate role of technology in education, schools were busy buying and installing computers. A survey conducted by the National Center for Education Statistics (NCES)

Major Uses of Microcomputers for Instruction 1981-82 School Year

Grade Level	Number of Schools with Micros	Major Uses of Microcomputers				
		Compensatory and Remedial	Basic Skills	Learning Enrichment	Computer Literacy	Computer Science
Total	27,501	3,910	5,103	5,174	9,055	6,237
			(In percents of column 1)			
Total	27,501	14	19	19	33	23
Elementary	11,050	18	29	21	29	7
Junior High	5,774	20	11	19	30	10
Senior High	9,504	6	12	18	39	49
Combined and other	1,173	19	6	4	34	15

Major Uses of Terminals for Instruction 1981-82 School Year

Grade Level	Number of Schools with Terminals	Major Uses of Terminals				
		Compensatory and Remedial	Basic Skills	Learning Enrichment	Computer Literacy	Computer Science
Total	5,898	698	754	1,422	1,308	2,005
			(In percents of column 1)			
Total	5,898	12	13	24	22	34
Elementary	958	23	20	28	0	0
Junior High	978	28	10	23	23	14
Senior High	3,620	6	13	21	28	47
Combined and other	343	0	0	50	15	45

Source: National Center for Education Statistics

revealed that the number of microcomputers available for instructional use of public school students tripled to 96,000 between the fall of 1980 and the spring of 1982. In the same period, the number of computer terminals available for instruction (24,000) remained almost constant.

The federal researchers found that slightly more than one out of every three (34 percent) public schools had at least one microcomputer or terminal available for instruction. Broken down by grade levels, the figures include about 60 percent of all secondary schools and 20 percent of all elementary schools. An estimated 4.7 million students used computers during the 1981-82 school year, the survey found.

As noted by NCES, both the total number of computers and their availability in public schools are expected to increase. In answering the NCES survey, 7,000 schools said they expected to get their first computer in the 1982-83 school year. In that same year, the responding districts said they would add 52,000 computers (95 percent of them microcomputers) for instructional purposes.

To some observers, these figures translate into the "beginning of a computer revolution" for schools. Education Secretary T.H. Bell, to cite one proponent, has called the computer the "textbook" of the 21st century."

Some school districts are starting to require students to take a computer literacy course or to have some minimal experience using computers before they graduate. Some states are also edging in the same direction. Legislators in Florida made that state the first to encourage by law the use of computer technology for instruction.

NCES found in its survey that teaching of computer literacy (which it defined as introduction to computer concepts) was the most prevalent major instructional application of microcomputers. The most common use of terminals, on the other hand, was the teaching of computer science.

NCES also found variations in usage by grade level. For senior high schools with either microcomputers or terminals, the most prevalent major instructional use was computer science. At the elementary level, microcomputers were being used for teaching computer literacy and basic skills; terminals were being used mainly for learning enrichment, remedial instruction, and basic skills instruction. (See the charts in this chapter for additional information and usage).

There were no surprises in what schools told NCES were their major needs in initiating or improving computer-based education. All schools (whether or not they already had some microcomputers or terminals) reported they needed more microcomputers and suitable courseware (software). Other needs (i.e., qualified teachers, start-up assistance, and staff-community support) were cited less frequently; nevertheless, between 41 and 50 percent of all schools indicated each of these as major needs.

Getting Started: Further Development

Schools are at a variety of stages in using computers for instructional purposes. Some have excellent programs, based on several years' experience with microcomputers and additional previous experience with computer terminals. Others have purchased one or more microcomputers and are using them only for drill and practice for selected students, if at all. Still other schools and districts are trying to decide which brand of computer to buy and are looking for information to help them set up a comprehensive program.

Whatever stage of exploration or development a district has reached, there are people and information sources it can turn to for additional help as it plans for the future.

Perhaps first inquiries should be made to the state education agency and the appropriate intermediate unit or county educational agency (if any).

Some state agencies have new units charged with responsibility for helping local school districts in their state develop computer programs, policies, and curriculum guidelines. The Pennsylvania Department of Education, to cite one example, made available nearly $800,000 in state grants during 1982-83 for projects involving the use of new technology in the classroom. A similar amount was made available in special education funds to support projects using technology to improve instruction for handicapped children. The department also developed a computer literacy course which was tested in 20 Pennsylvania school districts. It is being marketed for national distribution through a Pennsylvania publishing house. (For more information, contact the department, 333 Market St., P.O. Box 911, Harrisburg, Pa. 17108.)

Many states, including Pennsylvania and Minnesota, have established group purchase plans to enable schools to save money on hardware.

Many new magazines and journals are devoted exclusively to the use of computers in education, and entire booklets of references on various aspects of computer education are available

March of Technology Threatens Future of Many Students

Schools cannot afford to ignore computers and information technology the way they have generally ignored television, simply because, in the future, participating in society as a worker, consumer, or citizen will require a basic knowledge of the computer.

"Countless people already are disenfranchised because they are not well enough educated to function in the everyday world, technology notwithstanding. These people will be doubly burdened in the years to come. Already lagging in basic living needs, they will be overtaken and overwhelmed by the march of technology," said Rocco J. Marano, president of the New Jersey Bell Telephone Co., in a speech to business executives in 1981.

"Educational disenfranchisement in a technological age should be a leading concern for all of us. What we confront is the possibility that our society will divide itself into two classes: information haves and information have-nots. The rift would be between those who can participate in our culture and its system of rewards and values because they have access to information and knowledge, and those locked in closets of darkness, frustrated beyond imagination.

"Our standard in this decade should read 'forward to basics,'" Marano said, "because the basics of today hardly are those of yesterday, and the basics of tomorrow are freshly minted at the end of each day. They are constantly more demanding, and I might add, constantly more exciting."

through the ERIC system. In addition, probably a majority of the professional education associations now have committees or advisory groups investigating the most feasible way to integrate computers and other technology into American schools.

A must for planning committees: visit and read up on programs in other districts. Planning committees, administrators, and school board members can benefit from visits to other districts that are actively implementing a comprehensive computer education program.

If that is not possible, the next best thing may be reading case studies and talking by telephone with the administrators and teachers who are running such programs.

Case studies are regularly featured in monthly magazines and journals devoted to the use of computers in education. Here are some additional documents where case studies may be found:

- *Information Technology and Its Impact on American Education* (Office of Technology Assessment, U.S. Congress; see ordering information above). OTA investigators selected for study and review schools with well established activities involving technology, particularly microcomputers. Included are descriptions of the programs developed by: Lexington (Mass.) Public Schools; Novato (Calif.) Unified School District; Cupertino (Calif.) Union School District; Oxford (Mass.) Public Schools; Lyons Township Secondary School District, LaGrange, Ill.; Minnesota schools and the Minnesota Educational Computing Consortium (a state-operated consortium that develops and distributes nationwide a large amount of low-cost educational software); Houston (Tex.) Independent School District; and the Alaska State Department of Education.
- *Study of Issues Related to Implementation of Computer Technology in Schools, Final Report* (Bank Street College of Education, New York City, under sponsorship of the National Institute of Education, July 1981, 141p.; available through ERIC in microfiche or paper copy). A research team looked at three geographically distinct school districts with a diversity of microcomputer applications at both elementary and secondary levels. The

districts are given the fictitious names of *Salerno*, representing a district in a large southern city which is using microcomputers to improve student scores on basic skills; *Granite*, representing a midwestern city school district located in a state in which a state organization coordinates and facilitates instructional computing at all levels of education; and *Greenview*, representing a district in a small suburban community in the northeast in which microcomputers are used for many purposes at the elementary level and primarily for literacy and programming at the secondary level.

- *Microcomputer Directory: Applications in Education Settings, Second Edition, 1982* (Monroe C. Gutman Library, Harvard University Graduate School of Education, Cambridge, Mass. 02138; $15 prepaid plus $1 for postage and handling). This compilation of 900 applications of microcomputer usage represents almost 1,200 schools and other educational settings; e.g., colleges, museums. The directory would be useful to districts wanting to know who in their state is doing what with microcomputers. Each school or other organization is listed with a brief description of its program, the name of a contact person, the amount and type of equipment being used, the types of software (e.g., locally developed, commercial), and the sources of funding.

Tips on Planning

"The most important first step for any school or for any group of teachers (in integrating microcomputers into their educational program) is to create a plan," according to *Microcomputers in Education: An Introduction*, a report supported in part by the National Institute of Education.

The report, produced by the Northeast Regional Exchange, Inc. (101 Mill Rd., Chelmsford, Mass. 02138; $5), advised that "no single person can carry out a microcomputer program with total success without getting input from school and community representatives.

"The best plan," the report continued, "involves all possible users' points of view both to acquire a variety of perspectives and to build ownership of the outcomes."

The report is not specific as to how much time to allow for planning, advising only that it be "reasonable." Implementation should take place without delay once a plan is formulated, the report emphasized.

The planning committee, according to the report, should represent teachers from different academic departments, as well as the media center, and from different grade levels. If the program is to be used in all schools districtwide, representatives from all schools should, of course, be included in planning.

Parents are a welcome addition to any planning effort, the report said, both to maintain students in the program and to help with funding and linkages to business and industry.

The committee should also include administrative representatives from the superintendent's office, the business office, subject-matter specialists, principals, and department chairpeople. "It's never too early to get the support of those people who are going to approve funding requests," the report advised. School board members would also fall into this category. Finally, the report suggested the inclusion of representatives from local businesses.

Members of the planning group will benefit from hands-on experience with the software and hardware being considered for purchase, as well as exposure to simple programming.

The report listed 12 tasks for the planning group:

- Analyze your curriculum needs.
- Investigate and evaluate software.
- Visit programs in other schools or systems.
- Attend all possible conferences and vendor demonstrations.
- Determine your criteria for hardware selection, based on what you want to do and available software.
- Compare your curriculum needs with what's available to meet these needs (in terms of software and hardware); decide what you need and can afford. Be sure to specify the funding source for these needs, as well as for maintenance of the program.
- Work out a timetable for the implementation strategies that make the most sense for your district (e.g., a trial period with leased equipment, purchase in stages, summer curriculum development, ongoing teacher education).
- Develop strategies for professional development of teachers and administrators.
- Establish necessary financial and staff commitments and criteria for success.
- Establish criteria to evaluate the program.
- Implement the plan; do not neglect strategies to gain the support of staff, parents, community, and sources of financial aid.

A Computer Curriculum for the Future

Given ideal circumstances — effective software, well trained teachers, an adequate number of microcomputers, financial backing, and administrative, student, and parent support — what role can planners expect microcomputers to play in schools in the future?

That question was answered by Henry Jay Becker of the Center for Social Organization of Schools, Johns Hopkins University. He presented his "dream of what could be" in *Microcomputers in the Classroom — Dreams and Realities* (published by the center, 3505 N. Charles St., Baltimore, Md. 21218). Here are the possibilities he sees:

- That the machines could provide appropriate instructional stimuli on an individualized basis, with diagnosis and feedback to student and teacher.
- That computers could teach subject matter that is generally foreign to current curriculum, perhaps beyond the competency of the teacher, but important and useful preparation for the future.
- That computers would give students access to highly complex but flexible information storage, retrieval, and processing.
- That computers would provide experiences and opportunities to students through simulations which would be otherwise too costly, too risky, too time-consuming, or not possible.
- That computers would prepare young adults with logical thought and the ability to process information and perform analytic tasks through exposure to concepts and methods of computer programming.

The realities of computer usage, as Becker sees them, offer a sharp contrast to his dream. For example, he said schools typically buy computers in very small quantities, maybe one to a classroom to begin with, later expanded to three or four. "For teachers to effectively use a device primarily geared to a single user when they have one machine and 30 children demands, at minimum, a major planning effort.

"The capabilities of computers are irrelevant," Becker noted, "if they cannot be used effectively by teachers and other school personnel in the ongoing activities of existing educational institutions."

Among the other problems Becker noted are:

- Marketing sophistication of educational merchandisers in contrast to a comparatively inexperienced user population.
- Limited capabilities of programs sold as CAI (computer-assisted instruction) and limited capabilities of the computers bought by schools to use for this purpose.
- Almost complete lack of knowledge about computers by practicing teachers and likely existence of this deficiency for perhaps another generation.

School planners and policy makers should be aware of these and other possible pitfalls in the use of computers, Becker stated. He advised schools to make all staff members computer literate as a prerequisite for policy discussion and prior to any decisions to purchase microcomputers for instructional use.

Throughout the monograph Becker stressed that schools must realize both the potential and the pitfalls in using microcomputers for instructional purposes at this time. Otherwise, he cautioned, they may be disillusioned and give up before the full potential of computers can be realized.

Establish ongoing tasks for the planning group; provide for revision of the plan as necessary.

"Planning is essential," the booklet advised, "not to slow down your getting started but to make sure you don't have malfunctioning equipment without repairs, hardware without software, computers without teachers, limited use of your investment."

Planning Checklist

An additional checklist to help planning committees, administrators, and computer program directors in setting up or adding to a program was developed by Gary Becker, supervisor of instructional communications for the Duval County Public Schools, Jacksonville, Fla. (It was published in the October 1982 issue of *Electronic Education* and is reproduced here with permission.)

1. Why are you considering the purchase of a microcomputer for your school?
   - ____ Research indicates that micros are effective in improving learning.
   - ____ Micros improve teaching/learning efficiency; they can be cost-effective.
   - ____ Teachers are requesting micros.
   - ____ We've got to keep up with the times.
   - ____ In the 1980s, schools must teach computer literacy.
   - ____ We must be aware of technology's impact on the past, present, and future.
   - ____ Micros appeal to all learners.
   - ____ Micros represent a major revolution in education, similar to the introduction of the book.
2. How will your school use a micro?
   - ____ For all students.
   - ____ For special groups of students, such as exceptional learners, gifted and talented, average ability students, or adults.
   - ____ For keeping track of administrative information.
   - ____ For computer-assisted instruction.
   - ____ For specific curriculum areas: by subjects, grades, or integrated into exisiting programs.
   - ____ For specific instructional modes: drill and practice, tutorial, problem solving, programming, simulations, computer literacy, or a mix.
   - ____ For management, such as: testing, data analysis, information retrieval, word processing, and community reporting. Note: Your objective(s) will determine how sophisticated a system you should purchase.
3. What software (courseware) is available?
   - ____ Find the sources for software evaluation.
   - ____ See if the software has been validated.
   - ____ Research the costs.
   - ____ Determine which software (e.g., audiovisual materials, texts) have been correlated with the computer system.
   - ____ Determine if local curricula can be integrated as software.
   - ____ Find out if a local management system can be designed.
   - ____ See if user aids (e.g., manuals, guides, catalogs) are available.
   - ____ Select current periodicals/books.
   - ____ Determine copyright restrictions on software.
   - ____ Find out the replacement policy for defective software.
4. What hardware capabilities are offered?
   - ____ Research instructional requirements vs. computing capability.
   - ____ Find out the memory capacity, speed, noise, and power requirements.
   - ____ Determine if there are upward expansion capabilities and what the cost of interfaces are.
   - ____ Ask about portability.
   - ____ See if auxiliary devices or special features are available (e.g., graphics, color, synthetic speech, printers, music board, plotters, and random access devices).
   - ____ Determine the anticipated life span of the equipment.
5. How reputable is the vendor?
   - ____ Pick a vendor who's been in the business awhile.
   - ____ Pay close attention to what type of warranty is offered.
   - ____ Make sure installation services are provided.
   - ____ Check out contractual agreements or licenses with software companies.
6. How available is maintenance or equipment service?
   - ____ Research the frequency of breakdowns.
   - ____ Find out whether there is local or factory servicing available.
   - ____ Check out turnaround time.
   - ____ Find out if the maintenance contract covers in-house or carry-in service.
   - ____ Figure annual budget estimates for maintenance.
7. What training, inservice programs, or self-teaching materials are offered or need to be offered?
   - ____ Make sure there are special audience workshops for administrators, teachers, aides, and school board and community members.
   - ____ Determine if training sessions should be

offered at awareness and/or introductory levels and if there is programming instruction which correlates to the local curriculum. Ask what this will cost.

____ Ask if educational user groups for information sharing are available.

____ See if self-teaching programs are available on the computer and determine how easy they are to use and if the documentation (written instructions) is readable and well sequenced. Ask what this will cost.

____ Determine what programming language(s) have been used in materials (e.g., BASIC, Fortran, Pascal).

8. What are the options for financing a micro and what are the current cost projections?

____ Find out the cost of a basic system both with and without peripherals.

____ Compare cost figures with competing vendors.

____ See if you can purchase your system under a state contract or group bid.

____ Determine your source of funding (e.g., block grants, local funds, discretionary state/federal funds, other).

9. Where should the micro(s) be located in your school?

____ In a centralized area, such as the library media center, computer lab, or in classrooms.

____ Make sure the location meets electrical and other physical requirements.

____ Allow space for growth and room for students to write and to use references.

____ Determine the hours of access.

____ Make arrangements for securing the facilities.

____ Provide supervision for equipment usage.

____ Set up a schedule for use of facilities.

10. What support services are available from your district or regional educational center?

____ See if any assistance is available.

____ Check out long-range planning.

____ See if training support is offered.

____ Determine if software loan/exchange/access is available.

Note: Some administrators responding to the survey for this report described the probable future impact of technology on schools as "fantastic," "beyond our imagination," or "likely to change education as we know it." School planners can play a major role in making those predictions come true.

Tips on Purchasing Microcomputers for Administrators

How can school planners determine when the use of a computer is justified for administrative purposes?

An answer to that question comes from the Florida Department of Education. It says any of these four situations would generally justify the use of a computer:

- When massive amounts of data are to be processed through well defined operations.
- When processing is going to be highly repetitive.
- When processes are to be repeated many times under a variety of conditions.
- When speed of processing is of great importance.

The department lists a dozen areas in which computers could be helpful: athletics, attendance accounting, budgeting and accounting, grade analysis and reporting, guidance, instructional management, inventory and property records, media center, planning, scheduling, staff personnel, and student records.

If you are thinking of purchasing a microcomputer for administrative purposes, some planning is needed. "Do not make the mistake of purchasing a microcomputer this year that does not have the capacity to do next year's additional functions," the Florida agency cautions.

(For more information, contact Chase W. Crawford, Consultant, Management Information Services, Department of Education, Tallahassee, Fla. 32301. Ask for the report, "Educational Administration Applications, Resources for Microcomputers." A single copy is free upon request.)

Chapter VII

Tomorrow's Jobs

One of the few constants in the American labor market, as a government projection noted, is change. The future for blacksmiths and icemen, perhaps even steelworkers and auto assembly line employees, doesn't look particularly bright.

The labor market of 1990 and 2000 — the work force today's children will be entering — will differ sharply from the one most of today's adults encountered upon leaving school. Economists and government planners say there will be more jobs in high technology areas, fewer in farm and manual labor. Automation on the assembly line will likely reduce the number of blue-collar jobs. However, the highly sophisticated machinery and industrial robots, which will take away some blue collar jobs, will create others — for example, as technicians to repair the machinery.

"Remember the word 'plastics.'" That was the advice Dustin Hoffman as "The Graduate" got in 1968 as the key to his future. Today, the word is "computers," and no one is joking this time.

Some workers will see dramatic changes in their jobs in the next decade or two, Marvin J. Cetron, president of Forecasting International, Arlington, Va., told administrators attending the 1983 AASA convention. For example, he said, the widespread use of word processing equipment will require many clerks and stenographers to switch to jobs such as controlling robots in factories with word processing equipment.

By 1990, he added, 65 percent of all households will have two persons working. Every four or five years, he estimated, one of the partners will leave the ranks of the employed to receive training demanded by changes in technology. "With these changes already taking place," he said, "Americans must learn the knowledge and skills for new jobs now and for future jobs."

Cetron cited three specific changes education must make:

Acquiring competent teachers. He recommended increases in salary for all teachers, with additional increases for teachers in high demand areas, e.g., vocational education, math, and science. Students interested in becoming teachers, he said, should have to score at least 850 on the Scholastic Aptitude Test and pass a proficiency test of basic skills.

Changing prevailing attitudes toward education. Among Cetron's recommendations: Schools must find ways to retain teachers who can teach very bright students; high schools should increase math and science requirements; schools should emphasize academic achievement and de-emphasize athletics; all students should be taught the higher cognitive skills (e.g., problem solving, analysis).

Updating teaching methods and materials. Vocational schools should use computers to teach theory and content, with the teacher then taking over to provide hands-on training to individual students.

Computer Is the Key

"The rapidly developing drive toward the workerless factory — and the automated but still populated office — will affect American jobs and job-holders on a scale unprecedented in modern times. Scholars of automation do not expect this rapid substitution of machinery for human labor to increase unemployment, assuming healthy economic growth. But they do expect a radical restructuring of work, including a devaluation of current work skills and the creation of new ones at an ever-increasing rate," noted *Business Week*.

This will "fundamentally change" most workplaces and result in "painful adjustments" for some workers. "Ultimately, the nation's education system will have to prepare future workers for functioning in an electronic society."

What does this mean? It means, simply put, an upgrading of education for all students, not specific training in how to punch a keyboard, but rather in how to interpret the data a computer produces. Most informed observers say that knowing how to operate a computer is not a ticket to secure, high-paying jobs, anymore than welding is in Detroit or Pittsburgh today. However, a student who learns to understand and manipulate what a computer produces — information — stands a much better chance of gaining a secure job in the years ahead.

The information revolution makes clear that the education and training provided to students in the past will not suffice in the future.

Although students often view education in terms of whether it will help them get a job, no one holds that the sole purpose of education is to provide jobs. As noted by one observer: "Education helps us live happier lives and contributes to civility. It is the very key to the existence of a free and democratic society."

Job Projections

Where will new jobs be in the next decade? More likely in white-collar areas than blue-collar.

"Employment in white-collar occupations is expected to grow faster than total employment" between 1980 and 1990, noted Max L. Carey, a labor economist for the U.S. Bureau of Labor Statistics. The bureau's most conservative projections indicate that white-collars jobs will grow from 51.4 million in 1980 to 60.8 million in 1990.

"Employment in blue-collar occupations is projected to grow more slowly," Carey said, estimating an increase in blue collar jobs from 32.4 million in 1980 to 37.5 million in 1990.

Growth in Service Industries

The Labor Department predicted in one of its bulletins that employment in the service industries will increase from 65.7 million jobs in 1980 to between 79 million and 84 million by 1990, a gain of 20 to 27 percent. However, this growth will be spread unevenly among the sectors.

- **Transportation, communications, and public utilities:** This will be one of the slowest growing areas, with employment increasing at only about one-third the rate of the service area as a whole. Railroad and water transportation will continue to shrink in the number of employees, and employment in the communications industries will be limited by "technological innovations," the Labor Department said.

- **Trade:** Both wholesale and retail trades will grow along with the growth in the population, although retail trade is expected to produce more new jobs than wholesale.

- **Finance, insurance, and real estate:** This was one of the fastest growing sectors in the 1970s as the number of jobs grew by 42 percent. Strong growth is projected again throughout the 1980s.

- **Services:** This sector includes a variety of businesses such as hotels, barber shops, hospitals, and nonprofit organizations. This was another strong area in the past decade, led by the high demand for health care. The number of jobs grew by 37 percent in the 1970s, and will increase by 20 to 28 percent from 1980 to 1990, led again by the health care industry and business services.

- **Government:** Government was also a big growth area in the 1970s due to increasing demand for services from health, welfare, fire, and police workers. The number of jobs rose by 36 percent, but employment grew much faster in state and local government (a 47 percent increase) compared to the federal government (up 13 percent.) The public desire to limit government growth could put a damper on this sector throughout the 1980s, as employment is expected to rise by only 15 percent.

Goods Producing Industries

This sector grew far slower in the 1970s, as the number of jobs rose by only 10 percent. The 1980s, especially the latter half of the decade, will be somewhat better, with overall employment growth projected between 13 and 22 percent. But this will differ sharply by industry.

- **Agriculture:** Farm employment fell by 7 percent during the last decade, even though farm output grew, due to more mechanized farming and new seeds, hybrids, and fertilizers. The same trend should continue through the 1980s.

• **Mining:** After falling for decades, employment in mining shot up during the 1970s, registering a 65 percent gain, due to the worldwide energy shortage. In the 1980s, the number of jobs is projected to grow, but by a much smaller margin, possibly 20 to 30 percent.

• **Contract construction:** Employment rose in the 1970s by 25 percent because of a strong demand for houses, apartments, office buildings, and highways. Despite the severe recession in the early 1980s, the federal government still projects the number of jobs to grow by 24 to 36 percent during the decade.

• **Manufacturing:** Despite a growing population and rising incomes during the 1970s, employment in manufacturing grew by only 5 percent during the decade, the worst performance of any sector with the exception of agriculture. Many of the potential new jobs were lost to foreign competition. In this decade, manufacturing employment should fare somewhat better, registering a gain of 15 to 24 percent.

Types of Jobs

As mentioned, the number of white-collar jobs has been growing more rapidly than blue-collar, service, or farm employment for the past two decades. But there are considerable disparities within these broad categories:

• **Professional and technical** This category, which includes highly trained workers such as scientists, engineers, physicians, teachers, entertainers, pilots, and accountants, will continue to grow faster than the total job market, with a projected increase in employment of 20 to 26 percent. The need for greater energy production will contribute to a strong demand for scientists, engineers, and technicians, while the medical professions will continue their rapid growth. The number of systems analysts and computer programmers will soar, along with the entire computer industry. The number of lawyers and architects will continue to increase, but the competition for jobs will be severe.

• **Managers and administrators:** This group includes bank managers, buyers, business operators, and others. In the 1980s, the number of jobs will grow by a slightly slower rate than the professional and technical jobs. The number of self-employed business managers will decline as

Quick Guide to Future Jobs

One of the services of the Bureau of Labor Statistics, U.S. Department of Labor, is to project future job changes. Recently it ranked occupations by expected growth in the number of jobs during the 1980s.

Following is the bureau's listing of the 20 occupations with the largest growth in new jobs:

Occupation	*Projected percent growth in employment 1980-90*
Paralegal personnel	108.9
Data processing machine mechanics	93.2
Computer operators	71.6
Computer systems analysts	67.8
Office machine and cash register servicers	59.8
Physical therapists	50.9
Food service workers, fast food restaurants	49.6
Computer programmers	48.9
Tax preparers	48.6
Employment interviewers	47.0
Speech and hearing clinicians	46.6
Correction officials and jailers	46.5
Peripheral data processing equipment operators	44.0
Aero-astronautic engineers	43.4
Travel agents and accommodations appraisers	43.4
Nurses aides and orderlies	43.2
Claims examiners, insurance	43.0
Economists	42.0
Brickmasons	40.2
Psychiatric aides	39.9

Source: *Occupational Outlook Quarterly*; U.S. Department of Labor; Winter 1981.

corporations and chain operations dominate more areas of business. Growth will be stronger for management specialists within corporations, especially those with highly specialized training.

- **Clerical workers:** This is the largest occupational group and includes bank tellers, bookkeepers, accounting clerks, cashiers, secretaries, and typists. The number of jobs should grow at a rapid 19 to 27 percent for the decade, even though computers and other new office equipment will change the nature of many of the jobs. The exceptions are keypunch operators, stenographers, and reservation and travel agents, whose jobs may be lost to improved technology.

- **Sales workers:** This area, which includes sales workers in retail stores, manufacturing firms, insurance companies, and real estate agencies, should also see strong growth — a projected 19 to 29 percent increase in jobs.

- **Craft workers:** This includes a wide variety of highly skilled workers such as carpenters, tool-and-die makers, machinists, and electricians. Overall growth in jobs should be good — up a projected 18 to 27 percent for the decade — but it will be closely linked to the health of particular industries. For example, the number of jobs in the construction trade and high technology industries will grow, while railroad employment will continue to shrink, as will the number of jobs in the printing crafts.

- **Laborers:** This sector includes garbage collectors, construction laborers, and freight handlers. Employment growth will be below average, projected at 14 to 22 percent, because of more mechanization.

- **Private household workers:** This area is projected to be stagnant throughout the decade. Although the demand for maids and day care workers may be strong, fewer people are expected to seek the jobs because of low wages, little advancement possibility, and low social status.

Computer Occupations

All the experts agree on one point: the computer industry itself will create many new jobs in the next 20 years. Computer occupations "are expected to be the most rapidly growing occupational group in the economy over the next decade," according to the Labor Department's *Occupational Outlook Quarterly*. Between 1978 and 1990, the department projected an 85 percent increase in the number of new jobs in the computer industry.

Trends

The Bureau of Labor Statistics, taking a look at the growing computer industry, projects these trends for the next decade:

- The educational system "will need to develop more programs to meet the continually rising demand for computer workers." Schools should seek to "infuse computer-related training into non-computer curriculums."

- Shortages of computer workers are expected to become more pronounced in the next decade, and competition for qualified employees will become more aggressive.

- As a result, salaries and wages for employees in the computer field will escalate because of the competition. The bureau foresees "an upward wage spiral" throughout the industry.

- The heightened demand for computer employees will have a secondary impact on schools, universities, and training centers, first in creating a potential market for retraining of mid-career employees, but also in depriving these same educational facilities of many of the most qualified employees, who will be lured away by higher paying jobs in industry.

- As electronic data processing grows in importance, qualified data processing managers will begin showing up on executive boards, an action almost unheard of a decade ago.

For more information: The *Occupational Outlook Handbook*, published every two years by the Bureau of Labor Statistics (BLS), U.S. Department of Labor, is an encyclopedia of careers. The 1982-83 edition, for example, describes 250 occupations, with information on what the job is like; job prospects to 1990; qualifications, training, and educational requirements; earnings; chances for advancement; and where to find additional information. Ordering information for the handbook is available from regional offices of the BLS.

Other AASA Critical Issues Reports

Building Morale . . . Motivating Staff: Problems and Solutions. Declining enrollment, little turnover, limited advancement opportunities, budget cuts, autocratic principals — all can lead to decreased morale and motivation on the part of teachers. In this report, teachers, administrators, and researchers identify morale builders and morale killers. Also included: in-depth case studies and sketches of districts with excellent morale; a way administrators can determine the health of their district; and tips on inservice education, communications, evaluation, and managing conflict. (80pp; 1983; single copy, $11.95; Stock No. 021-00834)

Teaching Writing: Problems and Solutions. Student writing is a major problem in the nation's schools. This report tells what districts and schools can do to improve the teaching of writing. It describes some of the country's most successful writing programs, how students can be taught to use the process used by professional writers, 13 ingredients for successful programs, tips on inservice training for teachers, the principal's role, how to assess and grade student writing. Includes interviews with several experts on teaching writing. (96pp; 1982; single copy, $11.95; Stock No. 021-00901)

School Budgeting: Problems and Solutions. School districts should receive their fair share of the tax dollar if they develop reasonable, understandable, and defensible budgets. How to do this is explained in detail. The report describes how to make the budget an integral part of the school program; budgeting methods; involving staff, community, and students; planning ahead; and primers on finance campaigns, public relations, negotiations, and lobbying. (72pp; 1982; single copy, $10.95; Stock No. 021-00900)

Declining Enrollment — Closing Schools: Problems and Solutions. This report details recent lessons learned about declining enrollment, among them: school administrators must be "managers of change"; the importance of planning; the effective use of staff and citizen committees; and the need to tune up board policies in 25 areas. Also includes advice on public relations, projecting enrollment, empty school space, and staff reduction. Selected as "must reading" by the National School Boards Association in its 1981 review of education books. (88pp; 1981; single copy, $10.95; Stock No. 021-00336)

Collective Bargaining: Problems and Solutions. This report can help administrators and boards improve their understanding of negotiations. Includes advice on: what to include and to omit from negotiated contracts, contract language, table strategies, impasse, contract administration, grievances, communications, salaries, reduction in force clauses. Selected as "must reading" by the National School Boards Association in its 1981 review of education books. (95pp; 1981; single copy, $10.95; Stock No. 021-00330)

Student Discipline: Problems and Solutions. Many measures can be used to prevent unacceptable student behavior. This report defines: how school boards set policy on discipline; using the student handbook to manage student conduct; ways to involve parents; and advice on curriculum improvement, vandalism, smoking, corporal punishment, suspension. Selected as "must reading" by the National School Boards Association in its 1980 review of education books. (80pp; 1980; single copy, $9.95; Stock No. 021-00334)

How Schools Can Save $$: Problems and Solutions. Balancing the school budget is one of the toughest jobs confronting schools. This report includes suggestions from experts and case studies on cutting the costs of staffing, fringe benefits, energy, and insurance. (80pp; 1980; single copy, $8.95; Stock No. 021-00333)

Teacher Competency: Problems and Solutions. The testing of teachers is already under way in several states and school districts. This report tells what researchers know about "good" teachers, what administrators can do to improve teachers, how to reward teachers for good teaching. Selected as "must reading" by the National School Boards Association in its 1980 review of education books. (80pp; 1980; single copy, $8.95, Stock No. 021-00332)

Keeping Students in School: Problems and Solutions. This report provides an in-depth look at truancy, as well as other aspects of student attendance. It examines why students stay away from school, why they drop out, and how to cope with attendance problems. (79pp; 1979; single copy, $8.95; Stock No. 021-00331)

Staff Dismissal: Problems and Solutions. Who says teachers and other school employees can't be fired? They can. School districts can dismiss staff members in cases of incompetence or when declining enrollment or budget problems demand cuts. Selected as "must reading" by the National School Boards Association in its 1978 review of education books. (80pp; 1978; single copy, $8.95; Stock No. 021-00512)

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